

longitudinal shades on the yellow portion of the hind-wings."

"He reports specimens in which 'the black shades' have become conspicuous straight black bars."

Barrett, pl. 138, f. 2, gives a specimen in which one of the streaks of the black shading from the base of the dark base of the hindwing is prolonged into a "straight long conspicuous black bar."

The forms and names to be discussed are:—

interjecta, Hb. (1808-18), *Saml. Noct.*, 107.

ab. *rufa*, Tutt (1892), *Brit. Noct.*, 91.

ssp. *caliginosa*, Schwrd. (1918), *Verh. z.-b. Gess. Wien* (279).

a Southern race (1918), *l.c.*

Of these Tutt dealt with (1) Hübner's type as "very dull reddish brown" *interjecta*. (2) ab. *rufa*, the "bright red" form.

ssp. *caliginosa*, Schwrd., *Verh. Ges. Wien*, LXVIII (279) (1918).

FIGS.—*l.c.*

ORIG. DESCIP.—"Dark red-brown forewing with yellow suffusion, sometimes almost orange yellow hindwing with broad black marginal band and strongly developed, dark basal rays." N.W. Germany, Holland, Belgium, N. France, and England.

The figure (b. and w.) is that of the form predominant in England.

The author gives a figure of a specimen from near Fiume in which the forewing is said to be bright brown, bright yellow hindwing with narrower black marginal band, and says that the black basal rays are either obsolescent or quite absent. This is a rare form in Great Britain, but is the dominant form in the southern area of the species. He does not name this form.

There seems confusion. Hübner's type, figure 107, presumably from a northern (area) specimen is the form, which Schwrd. describes under the name *caliginosa*. Thus it would appear that the British form (from literature) is ssp. *caliginosa*.

Thus we get:—

(1) Hübner's "very dull reddish brown, almost greyish," by Tutt, a form rarely met with in Britain.

(2) The figure in Hübner (another copy), which is our "rusty brown inclining to brick red," Newman. Both being called *interjecta*.

(3) The dark red-brown form of Schwrd., which he names *caliginosa*, and which appears to be the form which we find in this country generally and in the northern area of the distribution of the species.

(4) The "bright brown, with narrow bordered hindwing," occurring in the southern area of its occurrence, and unnamed so far.

(5) The "bright red" form *rufa*, Tutt.

Triphaena, Ochs. & Tr. (1816-25). Most authors. [*Agrotis*, Ochs. & Treit. (1816-25), Stdgr., Barr., Splr., Culot]. *janthina*, Schiff. (1775), not *ianthina*.

Tutt gave Esper (1786) as the original describer. This was not so, for on turning to Esper, *Schm. Abbild.*, IV, 150, I find Schiff. (1775)

and five other previous authors given as references. Three in error under the name *domiduca*, Hüfn. (= *fimbria*). Knoch, *Beitr.*, II, 63: Göze, *Ent. Beitr.*, III (3), 35: Fuessl., *Arch.*, III, 1, plt. 16, 1 (1791). This figure is a form of *janthina* although called *domiduca*, Hüfn. [= *fimbria*]. The dark base of the hindwing, and the size, etc., are not characters of *fimbria*.

janthina, Schiff., *Verz.*, 78 (1775).

ORIG. DESCRIPT.—“A violet-blue brown marked (‘grey-spotted’) owl-moth. With yellow black-margined hindwings. A small crest on the abdomen, divided transversely into tufts.”

Borkhausen, *Naturg.*, 109, quotes the descriptions of Fab., *Mant.*, II, 152, of De Villers, *Ent. Linn.*, II, 278, neither of which refer to the yellow hindwings. He also describes a *Noctua janthe*, *l.c.*, 111, but on p. 809 acknowledges his error. He recognises Esper's *domiduca* as *janthina*, and also the *domiduca* of Knoch as *janthina*.

Illig., *Neu. Ausgab. Verz.*, I, 249 (1801), accepts Borkhausen's statements, and refers to Brahm, *Ins. Kal.*, II (1), 213, and to Panz., *Faun. Germ.*, XLII, 23.

Borkhausen, *l.c.*, gave a full description of the species. It was called *fimbria-minor* by De Villers, *Ent. Linn.*, II, 278; *l.c.*, IV, 403 (correction to *janthina*).

Tutt, *Brit. Noct.*, II, 91 (1892): Barrett, *Lep. Br. Is.*, IV, 10, plt. 133, 1 (1897): Stdgr., *Cat.*, IIIed., 135 (1901): Hamp., *Lep. Phal.*, IV, 627 (1903): Splr., *Schm. Eur.*, I, 143, plt. 32, 7 (1903): South, *M.B.I.*, I, 234, plt. 116, 3 (1907): Warr.-Seitz, *Pal. Lep. Noct.*, III, 63, plt. 15a (1909): Culot, *N. et G.*, I (1), 30, plt. III, 14-15 (1909): Corti-Drdt.-Seitz, *Pal. Noct. Supp.*, III, 90 (1933).

Esper, plt. 104 (25), figs. 4, 5, gives two good figures, of which the latter is an aberration with the colour of the hindwing a very pale yellow, the base is a grey black.

Ernst. & Engr., *Pap. d'Eur.*, VII, 38, figs. 433 c, e (1790), are very good illustrations.

Fuessl., *Archives. Ins.*, plt. 16, figs. 1-5, gives excellent figures as *domiduca*.

Newm., *Brit. Moths*, 338 (1869), has a good b. and w. fig.

Splr., *Schm. Eur.*, I, plt. 32, 7, has a good figure.

Barr., *Lep. Br. Is.*, IV, plt. 138 (1897), has three good figures: 1a has colour generally light with absence of stigmata: 1b has stigmata strongly marked in white, with other whitish marking.

Hb., *Samml.*, 100 (1802), has a very good figure indeed.

Godt., *Hist. Nat.*, plt. LIX, 6 (1824), gives an excellent figure, but without the violet flush and with a very wide margin to the hindwings. intensely black.

Freder, *Neu. Beitr.*, III, 262, has a good figure, but the stigmata are rather crude.

Wood, *Ind. Ent.*, 116 (1833), has a good figure.

Culot, *N. et G.*, I (1), plt. III, 14, 15 (1909), gives two excellent figures, the latter ab. *obscura*.

Panz., *Fn. German.* XLII, 23, gives a figure with more violet flush than usual.

South, *M.B.I.*, 1, plt. 116, 3, gives a figure with only moderately wide black border to the hindwing.

Warr.-Seitz, fig., plt. 15a, is not bright enough to represent our average British, "inclining to brick-red" forewings.

Of the Variation Barrett writes:—"Not a very variable species, though in some individuals the forewings lose the purple tinge and become reddish-brown or even reddish drab, or on the other hand become very dark purple-brown; occasionally the two stigmata are much more distinctly marked with ashy white."

Barrett's plt. 138, figs. 1 and 1b, both have stigmata strongly marked with white which colour had run over on to the costal area.

Specimens with slight or very slight white partial surround of the stigmata are in most collections, and in some examples this surround is yellow.

Barrett's fig. 1a, plt. 138, is an unusually light-banded form, there being at least half a dozen light bands or transverse wide lines in addition to the partially light sub-basal area. There was an example in Sydney Webb's collection.

Gregson speaks of "straw-coloured" hindwings in one bred example "he has seen."

The Names and Forms to be considered are:—

janthina, Schiff. (1775), *Verz.*, 78.

domiduca, Hüfn. (1766), *Berl. Mag.*, III, 404.

ab. *rufa*, Tutt (1892), *Brit. Noct.*, 91.

ab. *latimarginata*, Rüb. (1900), *Ent. Nacht.*, 204.

ab. *flavomaculata*, Splr. (1903), *Schm. Eur.*, I, 143, plt. 32, 7.

ab. *obscura*, Culot (1909), *N. et G.*, I (1), 30, plt. III, 14-15.

v. *algirica*, Obthr. (1919), *Lép. comp.*, XVI, 102, plt. CCCXCIII, 4087.

f. *intermedia*, Roth. (1922), *Nov. Zool.*, XXVII, 35.

ab. *purpurascens*, Harsn. (1937), *Scott. Nat.*

ab. *peacocki*, Harsn. (1937), *l.c.*

ab. *subrosea*, Harsn. (1937), *l.c.*

ab. *plusioides*, Harsn. (1937), *l.c.*

ab. *virgata*, Harsn. (1937), *l.c.*

f. *ronansis*, Harsn. (1937), *l.c.*

Tutt dealt with (1) the purplish-brown type form and (2) *rufa*, the red-brown form.

Culot, *l.c.*, 30, remarks on the indefinite difference between ab. *obscura* and ab. *latimarginata*. "With a considerable number of examples in some localities it is difficult to draw a line of distinction."

ab. *latimarginata*, Rüb., *Ent. Nacht.*, 204 (1900).

ORIG. DESCRIP.—"They are generally somewhat smaller than specimens of the typical form, such as figured in Hoffmann's work, "*Gross-Schm. Eur.*," 1894, plt. 32, f. The forewings are darker and the stigmata sharper marked. The hindwings above and below deeper yellow, the black marginal band much broader and on the upper side runs on the costa as well as on the inner margin to the black basal area, so that on the upper side only a spot of yellow shows in the middle of the wing. The fringes of the hindwing are in most specimens blackish at the apex, more apparent than is the case in most specimens of the type form. On

the under side of the forewing the inner portion is intense black, and the outer marginal darker yellow, in many examples red-brown. The abdomen darker on the upper side and deeper yellow below." Harz.

Hamps., *Cat. Lep. Ph.*, IV, 627 (1903), says, "Smaller and darker and with broader terminal band to hindwing."

ab. *flavomaculata*, Splr., *Schm. Eur.*, I, 143 (1903).

ORIG. DESCRIP.—"In which the yellow of the hindwing shows as a round spot."

ab. *obscura*, Culot, *Noct. et G.*, I (1), 30 (1909).

FIG.—*l.c.*, plt. III, fig. 15.

ORIG. DESCRIP.—"An aberration remarkable for the size of the black band and the amplitude of the wings." Bdv. coll.

var. *algirica*, Obthr., *Lép. comp.*, XVI, 102, plt. CCCCXIII, 4087 (1918).

ORIG. DESCRIP.—"Differs from the normal form by the restriction of the black marginal band of the hindwings, the increase and strength of the yellow colour of the same wings, and the larger size." Algeria.

f. *intermedia*, Roth., *Nov. Zool.*, XXVII, 35 (1922).

ORIG. DESCRIP.—Intermediate between *janthina* and sub-sp. *algirica*. "In size and marking of forewings similar to ab. *rufa*, Tutt, but the hindwings have a much narrower black border, though not quite so narrow as in *algirica*."

var. *peacocki*, W. H. Harr., *Scott. Nat.* (1937).

ORIG. DESCRIP.—"Although black and blackish forms of *T. comes* are distributed very generally in North and West Scotland, melanic varieties of *T. janthina* have not hitherto been reported. However blackish insects not so extreme as those belonging to the allied species, were captured at various points on Raasay. In these examples the thorax and abdomen are black above whilst the upper wings have a blackish ground colour. This, nevertheless, exhibits the usual grey irrorations and markings observed in the more abundant red and purplish specimens. The variety is named *peacocki* after my friend, Prof. A. D. Peacock. It ought to be found well-scattered over the Scottish Highlands and Islands." (cf. *obscura*, Culot, I, 30, plt. 3.)

var. *purpurascens*, W. H. Harr., *Scott. Nat.* (1937).

ORIG. DESCRIP.—"Contrary to the indications of his knowledge that the greenish insect was the type of Esper, Tutt persisted in regarding the purplish form as such. Clearly such a position is untenable, and in view of the abundance of purplish varieties, the name *purpurascens* is suggested for them. They may be taken throughout the British Isles, including South Rona, Raasay and Scalpay, wherever the species occurs."

var. *virgata*, W. H. Harr., *Scott. Nat.* (1937).

ORIG. DESCRIP.—"Median area exhibiting a black band; on all the islands."

var. *ronensis*, W. H. Harr., *Scott. Nat.* (1937).

ORIG. DESCRIP.—“ In this variety the space between the submarginal and the outer lines, except for the reddish costal blotch, is filled in with grey. It was collected in all the islands, but more frequently in Rona—hence its name.”

var. *subrosea*, W. H. Harr., *Scott. Nat.* (1937).

ORIG. DESCRIP.—“ This insect presents a really magnificent appearance when fresh. It possesses a ground colour of a pinkish grey, sprinkled with blackish scales. The outer line is distinct while the space between it and the usual position of the central shade stands out as a darkish band, slightly suffused with rosy scales. The orbicular and reniform are both obsolete, but the submarginal line and the dull red costal patch are normal. The veins, especially vein 1 and those of the cell, tend to be outlined in black. The hindwings are normal. This form is scarce in Raasay.”

var. *plusioides*, W. H. Harr., *Scott. Nat.*

ORIG. DESCRIP.—“ In this insect the orbicular and reniform are well marked and filled in, except where the latter merges into the costal grey suffusion. Its general appearance recalls that of many British *Plusias*, from which fact the name is derived. Taken in the Inverarsch area of Raasay.”

THE GENUS *TRIPHAENA*.

These six British species until a generation ago were placed together in one genus. Then it was considered that there was evidence of a difference between two groups of the species and we find Hampson dividing them between *Triphaena* and *Agrotis* and Warren-Seitz between *Rhyacia* and *Triphaena*. But in the *Mitt. Münch. Ent. Gesell.*, XVIII, 53 (1928), Corti discussed this problem and pointed out that the reasons for this separation could not be substantiated and again placed the three species, which had been removed, in the genus *Triphaena*.

Agrotis, Ochs. & Treit. (1816-25), *Stdgr. Splr. Culot.* [*Triphaena*, Ochs. & Treit. (1816-25). Most authors. *Amphipyra*, Ochs. & Treit. (1816-25), H.-S.] *fimbria*, L. (1767) = *domiduca*, Hufn. (1767) = *fimbriata*, Schreber (1759).

Tutt did not bring forward two names used for this insect previous to the *fimbria* of Linné, although he had copies of works with the references in his library (one of these books lies before me now).

First we have the

domiduca, Hufn., *Berlin Mag.*, III, 404 (1767).

ORIG. DESCRIP.—In the later half of the year. “ The storm-hood (cowl). With alternate pale and dark brown, slightly developed transverse bands, the hindwings orange-yellow, with a broad black margin.”

Rottemburg in *Naturf.*, IX, 135 (1776), in the early half of the year, criticised and added to Hufnagel; he wrote “ Olive-green upper-wing and much broader dark indigo blue band on the lower-wing.” Plt. I, fig. 3, is a very good coloured figure.

Then we have

fimbriata, Schreber, *Novae species Insectorum*, 13 (1759).

FIG.—l.c., fig. 9.

ORIG. DESCRIP.—“*Alis superioribus virente carneis, inferioribus fulvis; fascia nigra marginali. Habitat Haliae in der Heide, in Betula.*” A fleshy green form of our *fimbria*. This is doubtless the original description, but was overlooked when the time basis of the commencement of the binomial nomenclature was changed from the XIIed. of the *Systema Naturae* of Linn., 1767, to the 1758 edition X. Splr., *Schn. Eur.* (Corrigenda), I, 352 (1908), has noted that *fimbriata* was the priority name. Fabricius (*Sys. Ent.*, 603, 1775) refers to Schreber's *Ins.*, fig. 9, for *fimbria*.

Tutt, *Brit. Noctuae*, II, 92 (1892): Barr., *Lep. Br. Is.*, IV, 7, plt. 137, 2 (1897): Stdgr., *Cat. IIIed.*, 135 (1901): Hamps., *Lep. Phal.*, IV, 626 (1901): Splr., *Schn. Eur.*, I, 144, plt. 32, 14 (1903): South, *Moths Br. Is.*, I, 233, plt. 116 (1907): Warr.-Seitz, *Pal. Noct.*, III, 63, plt. 14i (1909): Culot, *N. et. G.*, I (1), 81, plt. IV, f. 1-3 (1909).

Ernst & Engr., *Pap. d'Eur.*, VII, figs. 432 (1791), has 5 very good varied figures, but not one of them is of the light typical figure described by Gn. 432c is a very dark black green; 432i is dark mahogany colour with the elbowed and marginal lines very white, enclosing a dull brown area.

Fab., *Ent. Syst.*, III (2), 57 (1794), refers to the figure in *Naturfor.*, IX, plt. I, fig. 3, as representing *solani*. He dealt with *fimbria* proper on p. 59.

Panzer, *Fn. Germ.*, Heft. XII, 17-18 (1793), gives 2 figures: 17 dull mahogany brown with very pale yellow hindwings; 18 generally reddish-ochre in colour of forewings, the hindwings about the normal yellow colour.

Harris, *Eng. Ins.*, plt. V, fig. 2 (1782), gives a picture of a very dark blackish brown specimen (yellow brown in his description).

Hübner, *Samml.*, gives 3 excellent figures: 102 is a beautiful pale green; 551 is a very rich mahogany or reddish brown; 552 is dark green of various shades. The markings in all three are quite characteristic. 102 and 552 are said by Gn. to be the *solani*, Fab.

Godart, *Hist. Nat.*, plt. 60, 1-2 (1824), has good figures. 1 is pale and 2 is deep brown with a tinge of dull green; this latter he says is the *solani*, Fab.

Wood, *Ind. Ent.*, fig. 114 (1833), gives a good figure of the typical form.

Freyer, *Neu. Beitr.*, IV, 161, plt. 381 (1842), gives a good figure of the green form.

Gn., *Noct.*, V, 318, considers the type to be the form in which the forewings are of a clear, pale, nankin colour, with a very faint brown median band and markings, the stigmata hardly present (not figured by Hb.).

Newman, *Brit. Moths*, 339 (1869), gives 3 b. and w. very good figures.

Barrett has 4 very good figures but not of the very extreme light or dark, plt. 137, IV. The species is so variable that it is almost impossible to match a specimen with a figure.

One feature in Barrett is not brought out and that is that the lighter examples have a very clear orange discal area in the hindwings, while the very dark examples almost invariably have dark (black) scales scattered in a somewhat darker orange area and the thick hairs seem to be darker. The submarginal area in the forewing of three of Barrett's figures is more contracted than in most specimens; usually this area is of considerable breadth.

Splr., *Schm. Eur.*, plt. 32, 14, gives two figures. A dull mahogany brown female, and a light somewhat olive shaded male.

South, *Moths Br. Is.*, I, 233, plt. 116 (1907), gives 4 good figures, but not one of the light form considered typical.

Warr.-Stz., *Pal. Noct.*, III, 63 (1909), gives 4 figs.: 14h is Tutt's *brunnea-virescens*, badly executed as there is no representation of *virescens* in it. 14i (1) is the pale nankin coloured type form. (2) is the *rufa*, Tutt. and (3) the dark olive green *solani*, Fb. They are well executed figures. He gave *domiduca*, Hufn. as a synonym.

Culot, *N. et G.*, I (1), 31, plt. 4 (1909), gives 3 excellent figures: (1) is the typical light form, (2) is the mahogany form, (3) is the dark green shades form. Typical, ab. *rufa*, ab. *solani* respectively.

The Names and Forms to be considered are:—

fimbriata, Schreber (1759), *Novae species Ins.*, 13, f. 9.

domiduca, Hufn. (1767), *Berlin Mag.*, III, 404.

fimbria, L. (1767). *Sys. Nat.* XIIed., 842.

ab. *parthenius*, Bergstr. (1780), *Schrift. Berl. Gesell. Naturf. Freunde*, I, 297.

ab. *solani*, Fb. (1787), *Mant.*, II, 150.

ab. *rufa*, Tutt (1892), *Brit. Noct.*, 11, 92.

ab. *brunnea*, Tutt (1892), *l.c.*

ab. *virescens*, Tutt (1892), *l.c.*

ab. *brunnea-virescens*, Tutt (1892), *l.c.*

ab. *nigricans*, Busse (1925), *Zeit. des öst. Ent. Verein.*, X, 50.

ab. *obscura*, Lenz. (1927), *Osth. Schm. Sudbay.*, II (2), 234.

ab. *variegata*, Lenz. (1927), *l.c.*

ab. *iago*, Cath., *Am. de Pap.* (1929), IV, 287.

Tutt dealt with (1) the *fimbria*, L., (2) the *solani*, Fb., dark green, (3) the reddish ochreous *rufa*, (4) the pale green *virescens*, (5) the mahogany brown *brunnea*, and (6) the *brunnea-virescens* red-brown tinted green.

Of the Variation Barrett says:—

“There is considerable variation in colour in this species. The yellow-brown or yellow-drab forms are by far the most common, some of these are almost unicolorous, others shaded and banded with warmer colour, as stated. The olive-green specimens vary much in intensity of colour, and some of them have the broad darker band before the second line very dark and rich, with a strongly contrasting whitish-green band beyond it. In the red-brown forms the same degrees in intensity of colour occur, and there are intermediates in which appear shades of green or drab along with the red-brown colour; and others with the whole space from the base to the second line very dark red-brown.”

He reports specimens "With the forewings of the deepest olive green approaching olive-black, and with the dark shades still blacker."

Another "Of a rich tawny or purple-red, having the reniform stigma black, and very dark red-brown bands."

Another "in which the yellow portion of the hindwing is shaded with black."

And another "having a slender black line in the yellow surface just inside, and parallel with the inner edge of the broad black band of the same wings."

Out of a series before me of more than a hundred specimens there are no two alike in their particular featuring.

There seems so much instability of marking that practically every example is a form, which fact has no doubt prevented additions to the nomenclature except on very broad general lines.

ab. *parthenius*, Bergstrasser, *Schrift. Berlin Gesell. Naturf. Freunde*, I, 297 (1780).

FIG.—*l.c.*, plt. 3, figs. 1-3.

ORIG. DESCRIP.—"Somewhat of the natural history of *fimbria*, L." "Anticis griseo-fusco viridique undatis, binisque in disco maculis. altera reniformi; posticis aurantiacis, fascia nigra submarginati et latiore." This refers to a grey-green form of *fimbria*.

ab. *nigrescens*, Busse, *Zeit. des öst. Ent. Ver.*, X (1925), p. 50.

ORIG. DESCRIP.—"The olive green of the forewing has become very dark and in the most extreme example is very nearly black. The marking towards the basal area can here and there be seen through the dark colour. These include the margins of the orbicular and reniform stigmata, the outer transverse line and the wavy line. The two pale areas of the costa are mostly present; in the two darkest specimens only a mere remnant. The band of the hindwing is normal; the orange yellow is suffused with blackish, passing into a clay yellow colour. This is the same tone of colour as in Zöllner's figure of ab. *melanos*, *Iris*, XX, plt. II." 9 examples were bred from eggs laid by a normal female in Brunswick.

ab. *variegata*, Lenz., *Osth. Schm. Sudbay.*, II (2), 234 (1927).

FIG.—*l.c.*, plt. XIII, fig. 1.

ORIG. DESCRIP.—"With whitish marginal area, dark discal area and very dark reniform stigma."

ab. *obscura*, Lenz., *Osth. Schm. Sudbay.*, II (2), 234 (1927).

FIG.—*l.c.*, plt. XIII, fig. 3.

ORIG. DESCRIP.—"Dark forms in various colours."

ab. *iago*, Cath., *Am. de Pap.* (1929), IV, 287.

ORIG. DESCRIP.—"(*solani*, F6, form olive-green f.w.) with the colour of the hind-wings and the abdomen replaced by a coffee-brown tint."

Triphaena, Ochs. (1816-25) most authors, [*Agrotis*, Ochs. (1816-25) Stdgr. Hamps. Splr. Culot: *Rhyacia*, Hb. (1822) Warr.-Stz.], *subsequa*, S.V. (1775) Hb. (1802) = *orbona*, Hufn. (1767).

Later and more recent opinion is, that the *orbona*, Hufn. was the species with the black apical dot or dots, although no mention of it was made in the short diagnosis of the original description.

The similarity of the two species now represented by the names *orbona*, Hufn. and *comes*, Hb. was so considerable that the early authors confused them as one, e.g. Bork., more particularly as they both occupied the same area of distribution. The pre-apical costal black dot always present in this species was overlooked, and was not mentioned in the early descriptions of the two species; Hufnagel, the author of the name *orbona*, made no remark as to the existence of this apical dot (or double dot). Tutt followed the custom of his time and called it *subsequa*, Schiff. & Hb. and leaves the species at that.

Series of these two species can readily be separated. Generally the former are brighter in all ways. The black markings, band of hindwing, discoidal crescent of hindwing, the yellow of hindwing are bright, strong and definite in opposition to the same features in the latter which are dull, fuzzy and weak in definition. Even the very dark forms of the latter species fall under the term indefinite in marking for the most part.

The issue of the 3rd edition of the *Catalog* by Staudinger in 1901 revised the nomenclature and identified this species as the *orbona*, Hufn. and the commoner species as the *comes*, Hb. confirming his own action in the previous edition of 1871, which Tutt had rejected (*Brit. Noct.*, II. 93).

This was accepted by South in his *Moths of the Br. Is.* (1907) but rejected by Warr.-Seitz, *Pal. Noct.*, III, 42, plt. 9c, who name this species the *subsequa*, Schiff. and treat the *orbona*, Hufn. as the species we have come to call *comes*, Hb. A complete inversion of the references of these two species.

In the subsequent revision of Seitz we find Corti-Draudt-Seitz, *Pal. Noct. Supp.*, III, 90 (1934) reverse the determinations of Warr.-Seitz in the main volume (III, 42). The name *orbona*, Hufn. is that of the typical form. In place of *demarginata*, Schultz, *non-marginata* of Luc. is added. Other forms are *attenuata*, Warren; *nigra*, Tutt; *robusta*, Turati; *nigra*, Piesz.; *olivacea*, Trti.; *subsequa*, Schiff.; *consequa*, Hb.; *sarmata*, Ramb. No further figure of this species is given.

All this seems very confusing still.

orbona, Hufn., *Berlin Mag.*, III, 304 (1767).

ORIG. DESCRIP.—“Forewing red-brown with reniform brown spot. The lower wings orange-yellow with a black margin, and black discoidal.”

Rott. in *Naturforsch.*, IX, 125 (1776) redescribed it, “The mourning band.” “Never larger than *Phalaena brassicae*. Possibly the ♂ of *Ph. pronuba*.” (It will be remembered that *pronuba* has a black apical spot.) He says that the forewings have the same markings as *pronuba* (thus implying the apical spot).

Göze, *Beitr.*, III (3), 191 and 215 (1781) recognised two species, *orbona*, Hufn., Rott., de Geer, and *subsequa*, Schiff. respectively.

Bork., *Naturg.*, IV, 102 (1792) mixes the two species under the name *subsequa*, Schiff.

Treit., *Schmet. Eur.*, V (1), 258, 254 (1825) under the names *subsequa*, Hb. and *comes*, Hb. respectively, but under *comes*, he placed *orbona*, Hufn.

Vieweg., *Tab. Verz.*, II, 95 (1790), first united *subsequa*, Schiff. with *orbona*, Hufn.

Schiff., *Verz.*, 79 (1775) named a species *N. subsequa*, which, in the new edition of the *Verz.* by Illiger in 1801 (I, 250), was identified as the *orbona* of Fab. *Ent. Sys.*, III (2), 57; the *subsequa* of Bork. *Eur. Schm.*, IV, 102; the *subsequa* of Brahm *Ins. Kal.*, II, 1, 66, 27; and the *subsequa* of Esp. *Abbild. Noct.*, 104. The Fb. reference probably refers to both *orbona* and *comes*; that of Bork. says "no black apical dot, *orbona*;" that of Brahm refers probably to both species; Esper's figures are *comes*, Hb. A very mixed identification.

Tutt, *Brit. Noct.*, II, 93 (1892): Barr., *Lep. Br. I.*, III, 20, plt. 138, 3 (1897): Stdgr., *Cat.*, III ed., 137 (1901): Splr., *Schm. Eur.*, I, 146, plt. 32, 10 (1903): Hamp., *Lep. Phal.*, IV, 385 (1903): South, *Moths Br. Is.*, I, 231, plt. 115, 1-2 (1907): Warren-Stz., *Pal. Noct.*, III, 42, plt. 9c (1909): Culot, *N. et G.*, I (1), 33, plt. IV, 8 (1909): Corti-Drdt.-Stz., *Pal. Noct. Sup.*, III, 90 (1934).

Most authors, who give illustrations, have good figures of this species under various names.

Hüb., *Beitr.*, I (3), 32, plt. IV, Y (1788) gave a good figure of a very dark brown tinted violet specimen to which he gave the name *subsequa* (probably from Esper), but in *l.c.*, I (4), *Verbesser*, 3 renamed it *interposita* (invalid).

Hüb., *Samml.*, 106 (1802) gives an excellent figure of *orbona*, under the name *subsequa*. He had previously, *Beitr.*, I, pt. 3, 23, fig. 4, Y (1788), given a good figure under the same name. Subsequently he changed the name to *interposita* in the Corrections (of course now considered invalid).

Freyer, *Neu. Beitr.*, III, 106, plt. 269 (1839) gives an excellent figure under the name *subsequa*. He says distinguished from *comes* by the sub-apical black dot.

Barrett has two good figures, one rather light and the other darker. The apical black spots are not so clear as in most examples I have seen (III, plt. 138).

Splr., *Schm. Eur.*, I, 146, plt. 32, 19 (1903) has a very good figure as *subsequa*.

South, *M.B.I.*, I, 231, plt. 115, 1-2 (1907) has two very good figures.

Warr.-Seitz, *Pal. Noct.*, III, 42, plt. 9c, gives figures and reverses the names *subsequa* and *orbona*.

Culot, *N. et G.*, I (1), 33, plt. 4 (1909), has an excellent figure.

Of the Variation Barrett says:—Usually only very slightly variable, but in the North-east of Scotland sometimes of a darker brown or else tinged with reddish.

Barrett records a specimen with pale yellow hindwings.

The Forms and Names to be considered are:—

orbona, Hufn., *Berlin Mag.*, III, 304 (1767).

subsequa, Schiff., *Verz.* (1775).

orbona Rott., *Naturf.*, IX, 125 (1776).

ab. *subsequa*, Hb., *Beitr.*, I (3), 32, plt. IV, Y (1788): *Verbesser*, l.c., I (4), 3 (1789). [*interposita*, Hb.] invalid.

subsequa, Hb., *Samml.*, 106 (1800-3).

sarmata, Ramb., *Ann. Soc. ent. Fr.*, 315 (1870-1).

ab. *non-marginata*, Luc., *Ann. Soc. ent. Fr.*, 402 (1903) [belongs to *comes*].

ab. *nigra*, Piesze, *Jarb. Wien. Ent. Ver.*, 113, plt. I, 5, XVII (1907).

[Continental forms of Tutt's British *nigra*.]

ab. *attenuata*, Warr.-Stz., *Pal. Noct.*, III, 42 (1909).

race *robusta*, Trti., *Att. Soc. Lt. Sci. Nat.*, LXIII, 72 (1924).

ab. *olivacea*, Trti., l.c.

Tutt dealt with the *subsequa*, Schiff. and Hb. and says "I have seen nothing worth calling a variety," *B.N.*, II, 93.

Prout, *Ent.*, XV, 221 (1915), referred to the fig. of Hb. in his *Beitr.* (1788) III, 32, plt., IV, Y, and pointed out with reserve (but I think correctly) that it was wrongly named as *subsequa*. Hübner himself, l.c., IV, *Verbesser*, 3 (1789), had evidently concluded it was wrongly named and published the name *interposita* to replace it. Doubtless Hübner took his name *subsequa* from the then recently (1786 ?) published plate CIV of Esper, but subsequently finding his own figure differed materially he renamed it *interposita*. Prout argued that since the figure Y has all the characteristics of *orbona*, Hufn., apical dot, dark band, dark well emphasised discoidal and absence of the fuzziness of the markings of *comes* one is quite justified in using the name *interposita*, Hb. as that of the brown form with violet tinge of *orbona*, Hufn.

subsequa, Hb., *Beitr.*, III, 32 (1788) [renamed *interposita* by Hb.].
Fig.—l.c., plt. IV, fig. Y.

ORIG. DESCRIP.—This description seems to have been overlooked by most authors. "The forewings are pale violet brown with reniform and orbicular stigma on the disc; both are dark brown encircled by very pale colour; the ground on which they stand is similarly succeeded by a dark band margined by the pale waved line. On the costa are small white spots which mark the commencement of the transverse lines, of which one runs out in the direction of and another near to the outer margin. On the outer margin stand seven black spots and the marginal area itself is brown. The lower wings are golden yellow, darkened with grey-brown in the direction of the outer and hind margins, at their middle with a black reniform spot—and towards the outer margin with a black band; the outer margin is pale golden yellow."

The colour of the figure in my copy of the *Beitr.* has so deteriorated that it cannot be compared with the above description in all details especially on the forewings. The wing shape is that of *orbona*, Hufn.

subsequa, Hb., *Samml.*, 106 (1800-3).

ORIG. DESCRIP.—Made from the figure, "Light dull red-brown, with four slightly marked transverse lines and stigmata. With white and black small spots on the costa at the origin of the lines. Two deep black

adjoined sub-apical spots. Hindwing somewhat dull yellow with black submarginal band, incurved at about the centre, narrow compared with remaining *Triphaena* species. Very slight light blackish rays from the clouded base." This is no doubt an *orbona*, Hufn.

sarmata, Rambr., *Ann. Soc. ent. Fr.*, 315 (1870-1).

ORIG. DESCRIP.—“*Alis anticis angustis, supra fusco-rufis et fusco variis, linea transversa fulgurali (external line), macula costali nigra integraque notata, et duabus vel tribus aliis costalibus albicantibus; posticis flavis, fascia postica exterius dentata, intus in medio fortiter emarginata maculaque media lunata nigris, hac subtus in medio flavicanti.*”

Reference. To the *Triphaena* of Guenée (*Noct.*, I, 319, A) described as the *consequa*, Hb. “But distinguished by the black band of the hindwing being strongly hollowed out on the inside while it is not so at all in the figure cited” (Hb., 105). It is represented in the figure of *subsequa* beside it on the plate (Hb., 106).

“Just the same size as *subsequa* and much resembles it. Colour of the forewings above generally of a dull red more or less deep varied with brown and other paler tints and slightly whitish. Costal margin marked with three small whitish spots of which that one adjoining the toothed line is more prominent and continues more or less visible along the line, but sometimes scarcely traceable; these lines start from the costa marked by shades or little blackish spots of which that of the outer line forms a black character enclosed in an obscure shade, not separated but entire on the costa.”

“Lower wings yellow.” “The base partly invaded by a brown tint in rays, along the inner margin to join up to the outer band; discoidal black, large and well marked.”

This appears to be a description of *subsequa*, Hb. which we now call *orbona*, Hufn.

ab. *attenuata*, Warren-Seitz, *Pal. Noct.*, III, 42 (1909).

ORIG. DESCRIP.—“Has the black border of the hindwing narrow and submarginal.”

Reference. “=*subsequa*, Haw. This is renaming of Haworth's description, *Lep. Brit.*, 161 (1809), which reads:—

ORIG. DESCRIP.—“*fasciâ posticarum alarum nigrâ, parum angustiore, et minus terminali quam in illâ,*” i.e. in *orbona*.

NOTE.—The two next forms have been included under the species *orbona*, Hufn. following the action of Corti-Draudt-Seitz, *Pal. Noct. Supp.*, III, 90 (1934). Without this indication and with the excellent coloured figures of Turati before me, I should, in spite of some *orbona* characteristics, certainly have placed them with *comes* as did Turati.—Hy. J. T.

r. *robusta*, Trti., *Att. Soc. Lt. Sci. Nat.*, LXIII, 72 (1924).

FIGS.—*l.c.*, plt. III, figs. 17-20 (very good coloured figures).

ORIG. DESCRIP.—“I have before me altogether 50 examples of the old species *comes*, Hb., which it is not possible to confuse with the races from the continent of Europe. To me they represent quite a distinct race of which the more important characters are, large size, more square wings, more robust in thorax and abdomen. Moreover, the yellow of

the hindwing has a decided tendency to orange. The lunule, which is nearly always present on the wings, is either absent or only very slightly expressed. Their black fascia is much less intense in colour, and spreads out thin to the outer margin of the wing." *Cirenaica*.

ab. *olivacea*, Trti., *Att. Soc. It. Sci. Nat.*, LXIII, 72 (1924).

FIG.—*l.c.*, 18.

ORIG. DESCIP.—"The new race also shows aberrations similar to those of the species both in colour and in the stigmata."

"Moreover, there occurs another form with greenish tinge, in fact olivaceous, which resembles certain forms of *T. fimbria*, to which I give the name *olivacea*."

Triphaena, Ochs. & Treit. (1816-25) most authors. [*Agrotis*, Ochs. & Treit. (1816-25) Stdgr., Splr., Culot: *Rhyacia*, Hb. (1822) Warr.-Stz.] *orbona*, Hufn. = *comes*, Hb.

The name *orbona*, Hufn. is invalid as it is used for the previous species.

Tutt, *Brit. Noct.*, II, 93 (1892): Barr., *Lep. Br. Is.*, IV, 17, plt. 139 (1897): Stdgr., *Cat.*, IIIed., 137 (1901): Hamp., *Lep. Phal.*, IV, 386 (1903): Splr., *Schm. Eur.*, I, 146, plt. XXXII, 20 (1905): South, *Moths Brit. I.*, I, 230, plt. CXV, 7-8 (1907): Warr.-Stz., *Pal. Noct.*, III, 42, plt., 9c, d, e (1909): Culot, *Noct. et Geom.*, I (1), 33, plt. IV, figs. 5-15 (1910): Corti-Drdt.-Stz., *Pal. Noct. Sup.*, III, 90 (1934).

Hüb., *Samml.*, f. 105 (1802) is a very dark *comes* form but not *curtisii*; very dark brown, so dark as to make all marking obsolescent. The hind-wing band is intense black. It is labelled *consequa*, i.e. *orbona*, Hufn. Hb., *l.c.*, 521 (1809-13) is a large specimen somewhat light red brown with clear markings labelled *comes*. Hb., *l.c.*, 680-1 (1818-22) is a light sandy brown specimen with clear marking but without the discal crescent in the hind wing; it is called *connuba*. The fore-wing is too pointed and the hind-wing band is distinctly that of *comes* and not *pronuba*. It is certainly a *comes* form. The figures are all very good.

Esper, *Abbild.*, IV, plt. CIV, 1-3 (1786) gives three very fair figures of different forms under the name *subsequa*, Schiff.

Ernst. & Engr., *Pap. d'Europe*, VII, 45, figs. 435a-g (1790) give seven figures, which are identified by Werneberg, *Beitr.*, II, 116 (1864) as a, d, e = *orbona*, Hufn. and b, c, f, g = *comes*, Hb. They are good average forms, the *comes* distinctively larger and somewhat duller.

Bork., *Naturg.*, IV, 102 (1792), under the name *subsequa*, Schiff., deals with *comes* but mixes the two species. He expressly says that the black spot near the apex, as in *pronuba*, with which he compares his species, is wanting.

Haw., *Lep. Brit.*, 161 (1809) describes an aberration with very narrow black band to the hind-wings under the name *subsequa*, Hb. which is an error. It is no doubt *comes*.

Treit., *Schm. Eur.*, V (1), 254 (1825) mixes the references.

Gott., *Hist. Nat.*, V, 156, plt. LIX, 2-4 (1825) gives three good figures of plain Continental forms, all with too much emphasis of the black band and no suggestion of the fuzziness generally present.

Stephens, *Ill.*, II, 106 (1829) deals with it under the name *orbona*.

Curtis, *Br. Ent.*, 348 (1831) gives a very pretty figure of a *comes* form which he labels *consequa*, Hb., 105, which it is not, as is readily seen by comparison of the two figures.

Freyer, *Neu. Beitr.*, III, p. 105, plt. 268 (1839) gives an excellent figure of a lightish grey-brown form.

Gn., *Hist. Nat.*, V, 319 (1852) treats it under the name *orbona*, Rott. but says it is the *comes*, Hb. and the *subsequa*, Esp.

Clark (& Tutt), *Ent.*, XXII, 145-7, plt. VI, 1-12 (1889) has 12 excellent figures of the various forms of this species, all from Forres, Scotland.

Meyr., *Handb.*, 100 (1896) placed *comes* in the genus *Agrotis*, but in the *Revised Hbk.*, p. 106 (1928) in *Graphiphora*, Ochs. close to *triangulum* and *xanthographa*.

Barr., *Lep. Brit. Is.*, IV, 17, plt. 139, gives 10 figs. (1897) under the species name *orbona*. 1a has a nice uniform light brick red ground with indications of the usual markings: 1b has a grey ground somewhat mottled: 1c has a very black brown ground with a light postdiscal band, two red brown stigmata, discal portion of hind-wing suffused dark, and very black submarginal band: 1d somewhat similar but the costal half lighter and redder including the surrounds of the two stigmata and upper portions of the transverse lines: 1e slightly darker than 1a in ground but with markings developed in a lighter shade, and the dark suffused hind-wing: 1f is of very dark ground with marking developed in a light fawn colour: 1h a somewhat mottled form.

Staudinger, *Cat.*, 137 (1901) places *subsequa*, Hb., *Beitr.* to *orbona*, Hufn. also *consequa*, Curtis; *adsequa*, Tr.; *prosequa*, Tr.; *curtisii*, Newman, and *subsequa*, Esper to *comes*; but the *consequa*, Hb., 105, he places to *orbona*, Hufn.

Hamp., *Lep. Phal.*, IV, 386 (1903) places *comes* in his omnibus genus *Agrotis*.

Splr., *Schm. Eur.*, I, 146, plt. XXXII, 20 (1905) gives a good figure of a very plain form under the name *orbona*, Hufn.

South, *Moth. Br. Is.*, I, 230, plt. CXV, 4-5, 7-8 (1907). The four figures are very good; fig. 7 is a distinctly red form and the *curtisii* is quite characteristic.

Warr.-Stz., *Pal. Noct.*, III, 42, plt. 9c, d, e (1909) use *orbona*, Hufn. for *comes*. They gave the name *attenuata* to the *subsequa*, Haw. (with the narrow black band on the hind-wing) and *conjuncta* to the *subsequa*, Curt. (with the stigmata joined); also they named a form from Cyprus as ab. *fumida*. There are seven good figures: *adsequa* 2, *prosequa*, *orbona* (*comes*), *rufescens*, *curtisii*, and *fumida*.

Culot, *Noct. et Geom.*, I (1), 33, plt. IV, figs. 9-15 (1910). All these seven figures are quite good and show the main characteristic forms except that the *curtisii* is of too uniform a coloration. The variation in this species being so excessive the author refrains from giving names to his figures.

Corti-Draudt-Seitz, *Pal. Noct. Supp.*, III, 90 (1934) say *subsequa*, Esp. (nec Schiff.) is a synonym: "to be added as synonyms *pronuba*-

minor, Vill., *orbona*, Fb. (nec Hubn.). Further, the following forms should be classified here: *adsequa*, Tr., *prosequa*, Tr., and *bergensis*, Splr., which in Vol. III were incorrectly placed with *orbona*. On the other hand *consequa*, Hb. and *sarmata*, Ramb. should be inserted under *orbona*."

Of the Variation Barrett says:—"Variation in this species appears to be local rather than climatal and somewhat arbitrary in its distribution. In the southern districts it has ground colour yellow-drab, yellow-brown, reddish-drab or greyish-drab; markings rather in the direction of their obliteration than otherwise, so that some individuals exhibit a lovely smooth creamy brown appearance almost devoid of markings. This creamy colour seems to be rather restricted to the south, but the general range of colouring as described appears to prevail throughout the United Kingdom, the markings becoming a little more pronounced in the north; but more decidedly so in the Orkneys, where both orbicular and reniform stigmata are distinctly dark brown, and the sub-terminal dark stripe of the fore-wings very conspicuous.

In North Wales there is a tendency in the direction of grey-brown colouring with the markings still indistinct; and in the North of Ireland to a warm reddish ground colour, as also in the case of Arran and the Scilly Isles, but so far as the British Isles are concerned the most interesting forms are found in the North-east of Scotland, especially in Morayshire. These take a very different range of ground colour—though accompanied by plenty of typical specimens and intermediate forms—deep claret-red, red-black, brown-black, deep rich red-brown, rosy-brown, dark liver-colour, or purplish drab; the two stigmata sometimes of the same colour, with slender yellow margins, often blacker with the margins yellow, or white; in some of these the transverse lines are pale and there is a marbling of yellowish over the surface: in others every line and every incidental curved streak or dot is accentuated or duplicated, or on the other hand, the whole dark or red surface is smooth and glossy, with little indication of the transverse lines. With this there is often in the hind-wings a suffusion over the yellow surface of smoky-black, till in some instances most of the yellow of the middle area is so beclouded as to become nearly black. This darkening extends only in a very small degree to the cilia."

"These remarkable dark forms, though common in North-east Scotland, are not confined to that district. These dark forms are usually smaller in size than typical specimens."

Barrett records specimens with:—

1. Whitish yellow hind-wings.
2. Black marginal band of the hind-wing broken.
3. Hind-wings very pale yellow, with central lunule obsolete.
4. Pale straw hind-wings with brown nervures and the black band almost colourless.
5. Smooth unicolorous chocolate black fore-wings. Orkney.
6. Intense red black fore-wings. Orkney.
7. Almost brick-red. N. of Ireland, Arran, and Scilly Isles.
8. Rich black-brown with chocolate markings. Hebrides.

Dr E. A. Cockayne writes me:—"Comes seems to me most difficult

to classify. So many of the colour forms shade off into one another. Half of one brood I had were almost unicolorous of a curious yellowish red with yellow around the stigmata. I cannot describe the colour. The other half were rich red with yellow around stigmata. None of either colour had more than a mere trace of the usual markings. I bred a *curtisii* with the ground colour of fore-wings faded in appearance, and the ground of hind-wings straw coloured, the black band of a grey colour. I have a specimen of ab. *non-marginata*, Luc. = *de-marginata*, Schultz. taken by Massey at Wallasey, the only British one I have seen."

The Names and Forms to be considered are:—

- orbona*, Hufn. (1767) *Berl. Mag.*, III, 304 [not comes].
- orbona*, Fb. (1787) *Mant.*, II, 150 (nec Hufn.) [invalid for comes].
- subsequa*, Esp. (1787-8) *Schm. Abbild.*, IV, 147, plt. 104, f. 2-3 (nec Schiff.) [invalid].
- consequa*, Hb. (1788) *Beitr.*, I (3), plt. IV, Y = *orbona*, Hufn.
- pronuba-minor*, de Vill. (1789), de Vill, *Linn. Ent.*, II, 279 [a possible name].
- interposita*, Hb. (1788), Hb. *Beitr.*, I (4), after p. 32, "Verbess." [invalid].
- melanozonias*, Gmel. (1790), *Linn. Sys. Nat.*, IV, 2544 [a possible name].
- f. *consequa*, Hb. (1802), *Samml. Noct.*, 105 [invalid].
- comes*, Hb. (1809-13), *Samml. Noct.*, 521
- ab. *subsequa*, Haw. (1809), *Lep. Brit.*, 161 [invalid]. Refers to an ab. with very narrow border.
- connuba*, Hb. (1818-22), *l.c.*, 680-1.
- f. *adsequa*, Tr. (1816-25), *Schm.*, V (1), 256.
- f. *prosequa*, Tr. (1816-25), *l.c.*, V (1), 254.
- f. *consequa*, Curt. (1831), *Brit. Ent.*, VIII, 348 (nec Hb.) [wrong identification with Hb. 105. Curtis suggests a var. of Hb. 106].
- f. *curtisii*, Newm. (1870), "Insect Hunter's Year Book" (*Ent.*) = *rufescens*, Tutt (teste Prout).
- ab. *pallescent*, Ckrl. (1887), *Ent.*, XX, 240 and *l.c.*, xxii, 4 (1889).
- f. *curtisii*, Clark (& Tutt) (1889), *Ent.*, XXII, 4, plt. VI (invalid name) = *clarki*, Prout.
- ab. *pallida*, Tutt (1892), *Brit. Noct.*, II, 96.
- ab. *grisea*, Tutt (1892), *l.c.*, 96.
- ab. *rufo-grisea*, Tutt (1892), *l.c.*, 96.
- ab. *ochrea*, Tutt (1892), *l.c.*, 97.
- ab. *rufo-ochrea*, Tutt (1892), *l.c.*, 97.
- ab. *virescent*, Tutt (1892), *l.c.*, 97.
- ab. *rufescens*, Tutt (1892), *l.c.*, 97 = *curtisii*, Newm. (teste Prout).
- ab. *rufa*, Tutt (1892), *l.c.*, 97.
- ab. *nigrescent*, Tutt (1892), *l.c.*, 98.
- ab. *rufo-nigrescent*, Tutt (1892), *l.c.*, 98 (replaced by *curtisii*, Newm., teste Prout).
- ab. *nigra*, Tutt (1892), *l.c.*, 98.
- ab. *virgata*, Tutt (1892), *l.c.*, 99.
- ssp. *bergensis*, Spr. Schn. (1901), *Berg. Mus. Aarborg.*, 155, f. 2.
- ab. *non-marginata*, Luc., *Ann. Soc. ent. Fr.* (1903), 402.

- f. *clarki*, Prout (1903), *Ent. Rec.*, XV, 222 [*l.c.*, XII, plt. VI, figs. C1, C2 (1900)] (= *curtisii*, Clark & Tutt).
 ab. *demarginata*, Schultz (1907), *Ent. Zts.*, XXI, 246, fig. = *non-marginata*, Luc.
 ab. *conjuncta*, Warr.-Stz. (1909), *Pal. Noct.*, III, 42.
 ab. *fumida*, Warr.-Stz. (1909), *l.c.*, plt. 9e.
 ab. *gredleri*, Htg. (1924), *Ent. Rund.*, XLI, 45.
 f. *corsatra*, Schaw. (1926), *Iris*, XL, 150.
 ab. *lineata*, Harrison (1937), *Scott. Nat.*, p. 171.

The analysis of the forms diagnosed by Tutt, *Br. Noct.*, II, 96 (1892), was as follows, with the subsequent revision made by L. B. Prout, *Ent. Rec.*, XV, 221-2 (1905), added in [].

1. Pale grey = var. *adsequa*, Tr.
- 1a. Pale grey, tinted with red = v. *pallida*, Tutt.
2. Dark stone grey = var. *grisea*, Tutt.
- 2a. Dark grey, tinted with red = sub-var. *rufo-grisea*, Tutt.
3. Dark blackish grey = v. *consequa*, Hb. [purple or violet grey, not blackish = *interposita*, Hb.] This cannot stand as it is *orbona*, Hufn.
4. Pale ochreous = v. *ochrea*, Tutt.
- 4a. Pale ochreous, tinted with red = sub-var. *rufo-ochrea*, Tutt.
- 4b. Pale ochreous, tinted with green = sub-var. *virescens*, Tutt.
5. Pale red = *rufescens*, Tutt.
- 5a. Bright dark red = v. *rufa*, Tutt. [h.w. not infuscated.]
- 5b. Reddish brown = v. *orbona*, Hufn. [delete and substitute] [b. Reddish brown, variegated with darker = ab. *comes*, Hb.].
6. Brown with red costa = v. *curtisii*, Newm. [del.] [7. Deep red more or less sprinkled with black, both f. and h. wings = *curtisii*, Clark and Tutt, nec Newm. = *clarki*, Prout].
- [8. Dark dull brown, hardly tinged with reddish excepting narrowly on the costa = ab. *curtisii*, Newm.]
7. = [9]. Black = v. *nigrescens*, Tutt.
- 7a. Black with red costa = sub-var. *rufo-nigrescens*, Tutt. [9a. ditto = *nigra*, Tutt].

Additional to above analysis:

1. Without lunules on h.w. = v. *connuba*, Hb.
2. With narrow border to h.w. = v. *subsequa*, Haw.
3. With contiguous stigmata = *subsequa*, Curt.
4. Reddish brown variated with darker = *prosequa*, Tr. [delete and substitute] [becomes new [6] above].

Appendix, *B.N.*, II, 172, var. *pallescent*, Ckll., "The hindwings creamy white," *Ent.*, XX, 240, and XXII, 4 (1889).

pronuba-minor, de Vill., *Linn. Ent.*, II, 279 (1789).

ORIG. DESCRIP.—"Alis incumbentibus griseis." "Similis omnino noct. *pronuba*, sed minor. Alae inferiores ut superiores subtus; species igitur diversa."

This is assumed to refer to *comes*.

consequa, Hb., *Samml.*, 105 (1802).

ORIG. DESCRIP.—(Made from the figure). "Deep, dark, purplish brown, with very slightly apparent markings. Costal origins of the

four transverse lines, not white, but bluish (under a glass). Wings somewhat larger and wider than in fig. 106, *subsequa*. The usual lighter marginal band can be traced. The hindwings pale orange yellow with intensely black marginal band wider and more uniform than in *subsequa*, and an intensely black discoidal crescent. Faint blackish rays come from the base, a broad one along the inner margin reaches the marginal band." The general shape of wing of this is quite different to that of *orbona* (*subsequa*, Hb.) which has the costa and inner margin nearly parallel. This must be a *comes* form.

comes, Hb., *Samml.*, 521 (1809-13).

ORIG. DESCRIP.—(Made from the figure). "A bold broad-winged insect of a general reddish-brown colour, most of the marking of the same colour but darker in tint; the reniform conspicuous from the light slender ring surround being in contrast with the darker interior. The submarginal is a widish darker band, the marginal a thin light line between two dark lines adjoining. Between the elbowed line and the submarginal band lies a row of darkish dots. The first (basal) and second lines start on the costa with white dashes. The orbicular is irregular in shape and scarcely perceptible. The hind-wing is very ample, and of a deepish orange yellow, the marginal black band is of rather below medium width. The discoidal is of irregular crescentic shape and rather narrow. Blackish streaks run below the costa from the base to the costal end of the black marginal band of hindwing."

ssp. *bergensis*, Spr.-Schnr., *Berg. Mus. Aarborg*. (1901), 155.

FIG.—*l.c.*, 2.

ORIG. DESCRIP.—"Sordide griseo fusca, abdomine dilutiore; alis anticis concoloribus maculis ordinariis strigisque fere obsoletis, alis-posticis pallide flavis, fascia lata lunulaque nigris ut in forma typica, subtus striga tenui undulata infra fasciam ornatis."

"The figure (coloured) somewhat resembles the Scottish form generally known as *curtisii*, in being dark and generally suffused, but wants the beautiful red brown of the *curtisii*, and the colour of the forewing is not so uniform."

ab. *clarki*, Prout, *Ent. Rec.*, XXV, 222 (1903).

FIG.—*l.c.*, XXII, plt. vi, figs. C1, C2.

ORIG. DESCRIP.—"Deep red, more or less sprinkled with black, both on fore and hindwings." = *curtisii* of Clark and Tutt nec Newm.

ab. *nonmarginata*, Lucas, *Ann. Soc. ent. Fr.* (1903), 402.

"Alis posterioribus margine nigro fere nullo." Auzay, Vendée, France.

"The forewings almost unicolorous, the hindwings almost uniformly yellow," i.e., almost the exact opposite to the var. *curtisii*, having only a blackish sinuous, very fine line, slightly expanded at its two extremities. Central lunule scarcely indicated. Underside agrees exactly with the upper." Corti & Drandt in *Supp. to Seitz, Pal. Noct.*, III, 90, place this to *orbona* and not to *comes*, with ab. *demarginata*, Schultz, *Ent. Zt.*, XXI, 246 (1907), as a synonym, without comment.

Prout, in *Ent. Rec.*, XV, 221 (1905), said: "The oldest valid name which I know for this species is *melanozonias*, Gmel., *Linn. Syst. Nat.*,

I, iv, 2544 (1790). The diagnosis is not first rate, but I do not think my determination is open to any possible doubt, especially when taken in conjunction with the fact that Zschack, in the *Mus. Lesk.*, places it next to *pronuba*, and gives it as European."

melanozonias, Gmel., *Linn. Syst. Nat.*, IV, 2544 (1790).

ORIG. DESCRIP.—"Ph. (Noctua) alis griseis ex luteo brunneis; posterioribus pallide flavis; disco macula transversa fasciaque submarginali nigra." *Mus. N.G. Lesk.*, p. 100, 297 (1788).

This reference has apparently been overlooked by all our continental authorities.

ab. *demarginata*, Schultz, *Ent. Zeit.*, XXI, 246 (1908).

ORIG. DESCRIP.—"They are distinguished by the absence of the broad black marginal band on the hindwings, which is almost wholly obsolescent, only the inner margin itself is alone represented by a marginal line of blackish grey scales. Almost unicolorous forewings."

ab. *conjuncta*, Warr.-Stz., *Pal. Noct.*, III, 42 (1909).

ORIG. DESCRIP.—"Burnt brown in colour, with the stigmata conjoined, and the veins paled." = *subsequa*. Curt. (nec Schiff.) = var. C. Guen.

ab. *funida*, Warr.-Stz., *Pal. Noct.*, III, 42 (1909).

FIG.—*l.c.*, plt. 9e. The figure shows the lines rather conspicuous and edged by black, and the forewings are not yellow grey but dark, approaching *curtisii*.

ORIG. DESCRIP.—"From Cyprus: has a dark fuscous forewing tinged with grey; the lines and edges of stigmata grey; the fringe wholly fuscous; hindwing wholly smoky orange; underside with no red tinge; the forewing dull yellow grey, the hindwing greyish yellow."

ab. *gredleri*, Hartig., *Ent. Rund.*, XLI, 45 (1924).

ORIG. DESCRIP.—"I have met with a striking *subsequa* form with complete black centered orbicular and reniform stigmata on the forewings upperside and pale yellow hindwings." S. Tyrol.

f. *corsatra*, Schaw., *Iris*, XL, 150 (1926).

ORIG. DESCRIP.—After mentioning the forms *nigra*, *nigrescens* and *curtisii* the author suggests that his captures in the mountains of Corsica, which have the general characteristics of these forms, are really a mountain form, since in a hundred or so specimens from Austria before him, not one showed this character. In Seitz Draudt says "Uniformly deep black, with silky gloss and bluish grey sheen. only the surrounds of stigmata and the post-median line are indicated in a lighter shade."

var. *lineata*, W. H. Harr., *Scott. Nat.* (1937), 171.

ORIG. DESCRIP.—"Entirely black, except for clearly marked outer and submarginal lines; a few bred from Raasay ova." (cf. *nigra*, Tutt, II, 98.)

Triphaena (1816-25). Barrett and most writers, Corti, Drdt., Stz. [*Agrotis* (1816-25), Stdgr., Hamps., Meyr. (1), Culot: *Graphiphora*,

Ochs. (1816), Meyr. (2): *Rhyacia*, Hb. (1822), Warr., Stz.] *pronuba*, L. (1758).

Tutt, *Brit. Noct.*, II, 99 (1892): Barr. *Lep. Br. Is.*, IV, 25, plt. 140 (1897): Stdgr., *Cat.*, IIIed., 137 (1901): Splr., *Schm. Eur.*, I, 145, plt. 32, 16 (1903): Hamp., *Lep. Phal.*, IV, 337 (1903): South, *M.B.I.*, I, 232, plt. 115 (1907): Warr.-Seitz, *Pal. Noct.*, III, 42, plt. IXe (1909): Culot, *N. et G.*, I (i), 32, plt. IV, 4-5 (1910): Corti-Drdt.-Stz., *Pal. Noct. Supp.*, III, 90 (1934).

This species is discussed, and described by all the old authors and those, whose works are illustrated, figure it more or less satisfactorily for the form before them, e.g., Mad. Merian, Albin, Frisch, Reaumur, Ammiral, Wilkes, Schaeffer, De Geer, etc.

Ernst. & Engr., *Pap. d'Eur.*, VII, 40, f. 434 (1792), give 9 figs., 6 upper and 3 undersides. Three have varied markings and three have nearly uniform ground colour with sparse marking. One has almost white lower wings with dull black hind marginal band. The figures are quite good.

Esper, *Abbild.*, IV, 139, plt. CII (23), 1-3 (1786), illustrates 3 forms. 1, variegated; 2, unicolorous very dark red brown; 3, pale grey with strong reniform and apical spot.

Hübner, *Samml.*, 103 (1802). A large variegated strongly marked rich brown form, with much paler basal half of costa. Excellent figure.

Godt., *Hist. Nat.*, V, 151, plt. LVIII, 1-4 (1824). The colour of the hindwing is pink, no doubt a deterioration. The forewings are very good. 1, a very dark black brown; 2, a sandy brown; 3 and 4, variegated forms. with fairly emphasised markings.

Treit., *Schm. Eur.*, V (1), 265 (1825), *innuba* as a species. p. 260 *pronuba*.

Steph., *Ill.*, II, 103 (1829), treats f. *innuba* as a true species as do Ochs. & Treit., but suggests it is a "mere variety."

Wood, *Ind.*, p. 31, figs. 112, 113 (1833), two good figs., typical and *innuba*.

Freyer, *Neu. Beitr.*, III, 115 (1839), plt. 274 *pronuba*, plt. 275 *innuba* as a var. The former a varied form, dull ground, fairly expressed marking; the latter a light ochreous brown form with an emphasised reniform, the remaining marking faint. Figures good.

Guen., *Noct.*, I (v), 321 (1852) refers to A. red-brown, liver-coloured, unicolorous the *innuba*, Tr., and to B. a yellow-ochreous-testaceous colour, concolorous costa and thorax which form Tutt named *ochrea*.

Hump. & West., *Brit. Moths*, I, 108, plt. xxi, 1-3 (1846) gives 3 very good figs.

Meyr., *Hand.*, 100 (1895), places it in *Agrotis*, but in *Hand. Rev.*, 106 (1928), places it in *Graphiphora*.

Barrett gives 7 figures, *l.c.*, plt. 140. (1) A light brown form with slightly darker markings, black apical spot and dark reniform. (1a) A very variegated form with whitish lines, spots, etc., dark ground. (1b) Ditto, with yellowish lines, spots, etc. (1c) Very like *oleracea* with light surround of the stigmata. (1d) Dull red brown, row of black spots in the submargin, and other markings, except dark reniform, very faint. (1e) Small size comparable to *T. comes*. (1f) The white hoary specimen, "flour" suffusion, badly depicted.

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Hamp., *Ind. Moths*, II, 190, places it in *Agrotis* in the *Index*.

Warr.-Seitz, *Pal. Noct.*, III, 42 (1909), suggests that the small form *hoegei*, H.-S., with a black discal dot on the hindwing disc, and which were all bred, may have been the result of hybridisation. They also place the ab. *connuba*, Hb., a dwarf form with markings indistinct and hindwings pale yellow, to this species; Tutt placed this among the *comes* (*orbana*) forms. They give a fig. of *connuba*, plt. 9e, which, although small, certainly looks to be a *pronuba* form.

Culot, *N. et G.*, I (i), 32, plt. 4, figs. 4-7 (1910), the two last called *innuba*. The author says that the only agreement in the various books he has consulted as to this form *innuba* is that the thorax and collar are concolorous with the fore-wings.

Corti-Drdt.-Seitz, *Pal. Noct. Supp.*, III, 90 (1934) following on the investigation of Kozantschikov [*Mitt. Münch. Ent. Ges.*, xviii, 53 (1928)] replaced the three species Warren put in *Rhyacia* back to *Triphaena*.

Barrett speaks of the Variation thus:—

“Variation in this species is constant everywhere, so that no single form can be admitted as the normal and typical. The light brown specimens are often almost unicolorous, except that the reniform stigma is dark; the purple equally so, but with the orbicular stigma yellow; but often, in both, these markings are obscured or almost absent, and only the constant sharp black wedge near the apex of the costa remains. Occasional specimens are of a much blackened purple, or on the other hand of a curious hoary grey-brown. In all cases the colour of the thorax agrees with that of the forewings, but in the dark umbreous purplish black forms there is usually an angulated black edging to the back of the collar. Rarely individuals are met with no larger in expanse than *T. comes* or *T. orbana*; these have also rather pale hindwings, but are instantly recognised by their shape, and the absence of the discal spot in the hindwings.”

He reports a specimen “of a most extraordinary whitened appearance, almost as though the thorax and the face and hindwings were obscured by a thin coat of flour.”

“Occasional specimens are of a much blackened purple.”

Others “of a curious hoary grey-brown.”

Another “has the forewings on one side dark brown, and that on the other pale slate grey and its thorax is equally divided down the middle into the same two shades.”

“Shetland examples are often of a bluish-grey or whitish-grey tint.”

A specimen which “has a distinct row of black spots, some of them wedge-shaped, from the sub-apical black triangle to the dorsal margin.”

Stephens said of the Variation:—“No two specimens of this inconsistent species are found precisely similar; it would therefore be fruitless to attempt to describe its varieties; it may be observed that the ground colour of the thorax and anterior wings is sometimes very pale griseous, with a few darker markings, and the reniform (or posterior stigma) conspicuously dark in its centre: the spaces between the stigmata and a triangular spot between the anterior one and the base of the wing are sometimes deep black, at others concolorous with the wings, as are the stigmata themselves; the hinder margin is occasionally destitute of

the row of black spots, and is sometimes darker than the rest of the wing, at others lighter.''

The Names and Forms to be considered are:—

- pronuba*, L. (1758), *Sys. Nat.*, Ned., 512.
f. connuba, Hb. (1818-22), *Samml. Noct.*, 103 (see *comes*).
f. innuba, Tr. (1823), *Schm.*, V (1), 260 and 265.
ab. hoegei, H.-S. (1856), *Neu. Schm.*, 117-8.
ab. ochrea, Tutt (1892), *Brit. Noct.*, II, 99.
ab. rufa, Tutt (1892), *l.c.*
ab. brunnea, Tutt (1892), *l.c.*
ab. ochrea-brunnea, Tutt (1892), *l.c.*
ab. grisea-brunnea, Tutt (1892), *l.c.*
ab. ochrea-innuba, Tutt (1892), II, 100.
ab. grisea-lunula, Tutt (1892), *l.c.*
ab. caerulea, Tutt (1892), *l.c.*
ab. distincta-caerulea, Tutt (1892), *l.c.*
ab. denigrata, Schultz (1907), *Ent. Zt.*, XXI, 247.
ab. cracoviensis, Prüff. (1914), *Bull. int. Acad. Polon. Sci. B.*, 197. figs.
ab. maculina, Wihan. (1917), *Soc. Ent.*, XXXII, 4.
ab. pallida, Kais. (1919), *Münch. ent. Ges.*, IX, 13-14.
ab. nuba, Kais. (1919), *l.c.*
ab. decolorata, Trti. (1923), *Att. Soc. It. Sci. Nat.*, LXII, 49 (1923).

Tutt dealt with (1) pale greyish form almost unicolorous, *pronuba*; (2) greyish-ochreous ditto, *ochrea*; (3) reddish-ochreous ditto, *rufa*; (4) red-brown ditto, *brunnea*; (5) ditto, with ochreous costa, *ochrea-brunnea*; (6) ditto, with greyish costa, *grisea-brunnea*; (7) black brown, almost unicolorous, *innuba*; (8) ditto, with ochreous costa, *ochrea-innuba*; (9) ditto, with greyish costa, *grisea-innuba*; (10) slatey grey almost unicolorous, *caerulea*; (11) ditto, with dark reniform and dark space between stigmata, *distincta-caerulea*; (12) with black lunule on hindwing, *hoegei*.

ab. denigrata, Schultz, *Ent. Zt.*, XXI, 247 (1907).

ORIG. DESCRIP.—“In this form in the hindwing above as also on the underside all the black is washed out, so that the hindwing appears uniformly dark yellow.” Kufsteins.

“Al. post. unicoloribus, flavis, fascia marginali nigra nulla.”

ab. cracoviensis, Prüffer, *Bull. int. Acad. Polon. Sci. B.* (1914), p. 197, figs.

Corti-Drdt.-Stz., *Pal. Noct. Supp. say*, III, 90 (1934), “obtained through the influence of chemicals and the name is not justified.”

ab. maculina, Wihan., *Soc. Ent.*, XXXII, 4 (1917).

ORIG. DESCRIP.—“Unicolorous dark red brown. Reniform stigma small, circular, pale on a dark brown ground, united by a black longitudinal streak with the orbicular.” Tschaslau, Bohemia. Häufigkeitsgrad. 1/100.

ab. pallida, Kais., *Münch. ent. Ges.*, IX, 13-14 (1919).

FIG.—*l.c.*, fig. 2 [a very poor figure].

ORIG. DESCRIP.—“The aberration figured is a specimen of a uniform silky pale grey colour, the wings showing a light silky gloss, such as is never met with in *pronuba*. The photograph does not bring this out. But in spite of this delicate colour the specimen cannot be placed as f. *nuba*, but to the main form *pronuba*. First because the collar is light grey as the ground of the forewings, while the thorax has dark brown hair. Secondly, on the other hand in spite of the strong pallor the forewings are not somewhat washed out, but very delicate, yet clearly marked. The stigmata stand out sharply and are suffused by black atoms. The apical spots are also deep black. But the most striking are the hindwings. They are wholly dull yellow, moreover the black outer band is pale grey like the ground of the forewings and appears only as a cloud darker than the yellowish ground of the hindwings. The fringes of the hindwings are almost white.”

Under the name *innuba*, Tr., two forms are included, both of which have the collar and thorax of one and the same colour, one retains the name *innuba* and the other is here described under the name *nuba*.

f. *nuba*, Kais., *Mitt. Münch. Ges.*, IX, 13-14 (1919).

ORIG. DESCRIP.—“Forewings, collar and thorax are generally similarly chocolate-brown colour, of the stigmata, as a rule, only the paler margin stands out from the darker ground of the forewings, so that they appear clear on a dark ground, just the reverse to that of the other paler form. Hindwings as in *pronuba* form.” (The *innuba* form has the reniform mostly black-brown on a pale ground.)

ab. *decolorata*, Trti., *Att. Soc. It. Sci. Nat.*, LXII, 49 (1923).

ORIG. DESCRIP.—“A very fresh example with the posterior wings not saffron yellow but of a pale muddy yellow. The rest as in the normal example of *pronuba* had the colour of the forewing much as if it had been washed with white.” Cyrenaica.

ab. *postnigra*, n. ab.

ORIG. DESCRIP.—Dr E. A. Cockayne informs me that there is a specimen with hindwings “nearly black” in the Stephens’ collection at the Brit. Museum.

Examples are also reported in which the hindwings are of a smoky yellow. Dr Cockayne reports several examples known to him.

Graphiphora, Ochs. & Treit. (1816-25), Treit. Meyr. (2) [*Agrotis*, Ochs. & Treit. (1816-25). Many authors, Meyr. (1), Splr., Hamps.: *Rhyacia*, Hb. (1821), Stdgr., Warr., Stz., Culot: *Exarmis*, Hb. (1821), South: *Noctua*, Treit. (1825), Barr., Sth.] *augur*, Fb. (1775).

Tutt did not give the original description of *augur*, Fb., which was in the *Sys. Ent.* (1775), p. 604, and which was a very inadequate one. “Cristata, alis planis fuscis, characteribus atris.” Perhaps the common German name described it better: “Die deutsche karaktereule.” Tutt gave the fuller description of the *Ent. Sys. emend.*, III (2) (1794), p. 61 (not 66 as in *B.N.*).

Tutt, *Brit. Noct.*, II, 102 (1892): Barrett, *Lep. Br. Is.*, IV, 36, plt. 141, 3 (1897): Stdgr., *Cat.*, IIIed., 136 (1901): Hamps., *Lep. Phal.*, IV, 458 (1903): Spuler, *Schm. Eur.*, I, 144, plt. XXII, 13 (1903): South, *Moths B. I.*, I, 218, plt. 110, 6 (1907): Warr.-Stz., *Pal. Noct.*, III, 49, plt. 11g (1909): Culot, *N. et G.*, I (1), 35, plt. V, 5 (1910): Corti-Drdt.-Seitz, *Supp. Pal. Noct.*, III, 82 (1935).

Esper's fig., plt. 131, 2, *Abbild.*, IV (1786), named *omega*, is decidedly red brown in the area between the two transverse lines, which includes the stigmata. (The *augur*, Esp., pls. 87, 88, is *lunaris*, Schiff. Both Fab., *Mant.*, and Bork., *Natg.*, note this.)

Ernst. & Engr., *Pap. d'Eur.*, VI, 168, fig. 588 (1788), give two figures, which are reddish brown differing in emphasis. Marking well produced and edged with pale grey. They do not agree with the description which says blackish brown.

There is little difference, if any, between the figure of *augur* in Hüb., 148, and the two figures of *hippophæes*, Hb.-Geyer, 782-3. Perhaps the very slightest indication of reddish in the brown of the former (type form).

Treit., *Schm. Eur.*, V (1), 210 (1825), identifies both *assimulans*, Bork., and *omega*, Esp., as *augur*.

Dup., *Hist. Nat.*, VI, 31, plt. 73, 6 (1826), gives a very good figure. In his description he gives the colour as a shining brown grey, and does not speak of a red tinge. (Dup. spells it *assimilans*.)

Gn., *Noct.*, V, 325 (1852), points out that Bork. describes this species three times: 1, *augur*; 2, *omega*; 3, *assimulans*.

Smith, *Ent. Amer.*, I, 13 (1885), pointed out that *haruspica*, Grote, was structurally not *augur* and that the character of the marking and size could not be regarded.

Butler (*Tran. Ent. S.*, 382, in 1889) considered the American *haruspica*, Grote (1875), as distinct. Tutt, in *B.N.*, II, 102, says "nothing but a form of *augur*." Smith, *Agrotidae* (1896), 92, says "The structure of the sexual characters proves the distinctness of the American form beyond a doubt;" cf. *Ent. Am.*, I, 13. Also Speyer's name *grandis* (1875) applied to the American species falls before *haruspica*, Grote (1875). There are other differences besides the sexual characters.

Barrett, *l.c.*, plt. 141, gives three figures—a light male, a dark female and a soft shining pinkish-brown form with only the faintest trace of markings, known as *helvetina*.

Stdgr., *Cat.*, IIIed., 136 (1901), places *haruspica*, Grte., as a form of *augur*, larger and with less marking.

South, *Moths B. I.*, I, 218, plt. 110, 6 (1907), has a very good figure of a dark blackish brown form.

Spuler, *Schm. Eur.*, I, 144, plt. XXII, 13 (1903), has a good figure of the dark grey-brown form. He still considers *haruspica* as a form of *augur*.

Warr.-Stz., *Pal. Noct.*, III, 49 (1909), considers *omega* and *assimulans* as typical *augur*, and included only *hippophæes* and *helvetina* as forms of *augur*.

Culot, *N. et G.*, I (1), 35, plt. V, 5 (1910), has a very good figure, with a slight tinge of red and rather obscure marking.

Meyr., *Hand. Revised*, 103 (1928), says that the *helvetina*, Knaggs, was a bleached example of *augur*. Barrett seems not to agree with this for he says, p. 36, "It is of a beautiful soft shining pinkish-brown," which it could not be if bleached.

Of the Variation Barrett writes:—

"Not very variable, but slightly so in the obscuration of the blackish markings; the edges of the orbicular and claviform stigmata being often fragmentary. In northern districts, especially in the N. of Ireland, is of a more dull smoky, or blackish umbreous, with little or no indication of the reddish gloss; in the more southern portions of that country of a rather warm brown, and some individuals have the transverse lines beautifully clear. Specimens from the North of Scotland are sometimes tinged with black. Suffolk specimens frequently present a greyer shade than is usual elsewhere."

He reports specimens "having a black dash from the reniform stigma."

Another with "the stigmata large and conspicuous, with added black dashes."

Another "of a very pale brown colour with only two stigmata visible."

Another "having the two upper stigmata united by a black bar."

Another "of a beautiful, soft, shining, pinkish-brown, shading off very slightly paler behind, and with hardly the faintest indications of the usual markings. Its thorax is of the same colour, as also its head, and its hindwings whitish, tinged with grey behind."

The Forms and Names to be discussed are:—

augur, Fb. (1775), *Syst. Ent.*, 604.

f. *omega*, Esp. (1788), *Schm. Abbild.*, IV, 398, plt. 131, 2.

assimulans, Bork. (1792), *Naturg.*, IV, 209.

f. *hippophaes*, Hb.-Gyr. (1827), 782-3.

ab. *helvetina*, Knaggs (1872), *Ent. Mo. Mag.*, VIII, 182.

[*haruspica*, Grote (1875), an American species.]

ab. *abdit*a, J. Joan., (1891), *Bull. Soc. ent. Fr.*, 81.

ab. *nigra*, Vorbrdt. (1911), *Schm. der Schw.*, I, 247.

ab. *conjuncta*, Schille (1924), *Pols. Pism. ent. Ver.*, III, 7.

ssp. *tobolskensis*, Shelj. (1929), *Mitt. Münch.*, XIX, 361.

ab. *bivirga*, Ceton. (1935), *Ent. Berich.*, IX, 192.

Tutt dealt with (1) the typical reddish brown form *augur*, Fb.; (2) *hippophaes*, Hb., the dark grey form; (3) ab. *helvetina*, Knaggs, a very pale form (silvery ?); 4, f. *omega*, Esp., a pale reddish form.

Bork., *Naturg.*, IV, 209 (1792), describes this species under the name *assimulans*, and in *Beitr.* of Scriba (1793), III, 272, Brahm redescribed it and figured it plt. xviii, fig. 6. If the colour of the figure can be relied on, the form was a striking aberration.

f. *assimulans*, Bork., *Naturg.*, IV, 209 (1792).

FIG.—Brahm, *Scriba's Beitr.*, III, plt. xviii, 6 (1793).

ORIG. DESCRIP.—"The forewings are yellowish grey bestrewn with very fine black specks. Two crenulate black transverse lines cross the wings and between them lie the usual stigmata. The first is a black round ring, the outer one is half-moon shaped and at the upper part is

obsolescent. Near the base is the beginning of a line which starts on the costa and disappears about the middle of the wing. Towards the hind margin there lies a dusky transverse shade, which on the outer side is defined with black, but on the inner side fades into the ground colour. Glossy." N. Germany.

Bork. goes on to distinguish his *assimulans* from the *pyrophila* of Fabricius (*Mantissa*), which it resembled somewhat.

race *abditata*, Joann., *Bull. S. ent. Fr.*, 81 (1891).

ORIG. DESCRIP.—“Forewings of a more or less brownish grey; the markings are confused, except the two usual stigmata, which are clearly marked. The reniform stigma is bordered with black, and the margin is a little more strongly coloured on the costa from the base of the wing. The other stigma is oval; it is surrounded by an unequally marked black line. Inside this border one finds another, whitish or greyish but a little clearer than the centre of the stigma. Just before the end of the wing is found a wavy band a little darker than the rest of the wing, and between the base of the wing and the oval stigma, one can trace another festooned line. The lower wing is whitish, a little smoky on the margin; the nervures are very distinct.” Caesarea (Asia Minor).

ab. *nigra*, Vorbrodtt., *Schm. Schw.*, I, 248 (1911).

ORIG. DESCRIP.—“There occur, especially on the Gotthard. quite dark almost blackish examples.”

ab. *conjuncta*, Schille, *Pols. Pism. Ent. Ver.*, III, 7 (1924).

Corti-Drdt.-Stz., *Supp. Pal. Noct.*, III, 82 (1835).

DESCRIP.—“A fairly common aberration in which a black longitudinal streak extends from the reniform stigma to the posterior transverse line.”

subsp. *tobolskensis*, Shelj., *Mitt. Munch.*, XIX, 361 (1929).

ORIG. DESCRIP.—“Size appears somewhat smaller than European specimens (expanse 36-38 mm.). Head, antennae, thorax, abdomen and all four wings much darker—black-grey. The transverse lines of the forewing upperside less distinct, the fringes of the forewings about the colour of the wings, that of the hindwings in their outer portion white (not yellow as in European examples). The underside of all the wings is much darker—blackish, but here all markings are very distinct.” Tobolsk, W. Siberia.

ab. *bivirga*, Ceton, *Ent. Bericht. Ned. Ent. Ver.*, IX, 192 (1935).

ORIG. DESCRIP.—“This example differs somewhat in marking, but the discal area of the forewing which lies between the two transverse lines is very much lighter in depth of colour so that it gives an entirely different appearance from the typical form.” Aalten, Holland.

Noctua, L.: Ochs. & Tr. (1816-25), many authors. [*Agrotis*, Ochs. & Tr. (1816-25), many authors: *Graphiphora*, Ochs. & Tr. (1816-25), Steph., H.-S., Meyr. (?): *Rhyacia*, Hb. (1822), Warr.-Stz., Drdt.-Cort.-Stz.: *Segetia*, Steph. (1829) Dup.] *castanea*, Esp. (1788).

Tutt, *Brit. Noct.*, II, 104 (1892): Barr., *Lep. Brit. I.*, IV, 100, plt. 148. 2b (1897): Stdgr., *Cat. Hled.*, 137 (1901): Splr., *Schm. Eur.*, I, 143, plt. 32, 21 (1903): Hamp., *Lep. Phal.*, IV, 377 (1903): South, *M.B.I.*, 1, 219, plt. 110, 2-3 (1907): Warr.-Stz., *Pal. Noct.*, III, 39, plt. 8g (1909): Culot, *N. et G.*, I (1), 36, plt. 5, 11-12 (1910): Drdt.-Corti-Stz., *Pal. Noct. Supp.*, III, 81 (1933).

Esper, *Abbild.*, IV, ii (2), 27, plt. 187, 8-11 (1788-1795)? figures a unicolorous red form with white grey nervures on the outer margin. Werneburg, *Beitr.*, II, 52, says that the description of the four stages in no ways differs from that of *neglecta*.

Ernst. & Eng., *Pap. d'Eur.*, VII, 7, fig. 401 (1790), give 3 figs. which may represent this species. The authors say that it is difficult to describe it recognizably.

Hb., *Saml. Noct.*, fig. 160 (1800-3), is a very dark grey form, *neglecta*, with markings fairly discernable, and on the same plate another figure 163 labelled *laevis*, which is no doubt a form of *neglecta*.

Haw., *Lep. Brit.*, 207 (1809), identifies his *laevis* with the *laevis*, Hb., fig. 163, which is a form of *neglecta*.

Dup., *Hist. Nat.*, VI, 88, plt. lxxviii, 4 (1826), gives a dark black brown figure not recognizable as *neglecta*, which does not agree with his description. In his *Supp.*, IV, 87, plt. lviii (1842), remarks on its resemblance to *castanea*. His figure is a rich red form. He places it in the genus *Scgetia*.

Dup. stated, *l.c.*, that *cerasina* had been sent to him as being nearly related to *castanea*, but that his examination of the specimen led him to consider it a species on account of the cut of the wings, the marking, and the difficulty of estimating the bad figure of Esper to compare, the only agreement was in the depth of the ground colour.

Steph., *Ill.*, II, 154 (1829), describes and figures on plt. 21 a greenish or yellowish grey *neglecta* form. It may be that the plate is defective in my copy. On p. 157, *l.c.*, he describes *laevis*, Haw. as "very obscure" and thinks it is not distinct from *Caradrina alsines*.

Freyer, *Neu. Beitr.*, IV, 38, fig. 312 (1842), pictures an extreme *cerasina* form of very dark black red mahogany. In *l.c.*, II, 136, fig. 2 (1836), he pictures *neglecta* a large well-marked form of dull brown, and a dove-coloured ("ashy grey" in the text) form with a greenish tinge, very strongly marked lines, a form I have never before seen figured, or referred to. In *l.c.*, VI, 16, fig. 489, he again figures *neglecta* of a more usually known soft grey with sparse marking and refers to fig. 136 as a reddish variety.

H.-S., *Bearb.*, II, 361, figs. 131-3 (1846), gives 3 red figures as *cerasina*, 131 lighter red with clear marking, the other two very dark mahogany red with obsolescent marking in 132 and black hindwings in 133. These last two are doubtfully *castanea* as we know it. He treats *neglecta* as a separate species. The genus is *Noctua* in the text but *Graphiphora* in his Sys. List.

Spuler, *Schm. Eur.*, I, 146, plt. xxxii, 21 (1903), gives two very fair illustrations of *castanea* and *neglecta*.

On Plate 148 Barrett, *Lep. B. Is.* (1897), gives three figures. Fig. 26 is said in the text to be of a "creamy-ochreous" specimen, which it cer-

tainly is not. I should call the figure a rich ochreous possibly agreeing with Ridgway's Honey-yellow or Olive-ochreous.

South, *M.B.I.*, I, 219, plt. 110, 2-3 (1907). Fig. 2 is a greyish form, f. *neglecta*; fig. 3 is a reddish brown. The figures are good.

Warren-Seitz, *Noct.*, III, 39, plt. 8g (1909), treat *laevis*, Hb., Haw., as a synonym, and give 3 figures. 1, *cerasina* with red tints predominant; 2, *neglecta*, the red wholly lost; and 3, *castanea*, the pale grey typical form with slight reddish tint. The figures are fairly good, but too hard.

Culot, *Noct. et G.*, I (1), 36, plt. v, 11-12 (1910), gives two excellent figures, *castanea* and *neglecta*.

Corti-Drdt.-Stz., *Pal. Noct. Supp.*, III, 81 (1933), say "In the south the form ab. *neglecta*, Hb. is the more usual, in Sicily it is the more usual. In the Tyrol this grey form frequently has a brownish hue. In the S. Tyrol transition forms occur, i.e., *neglecta* with a heavy rufous tinge, which is not confined to the base. It is named *subrufa*, Dhn., and is said to differ from the English form *laevis*, Hb., Haw."

Barrett remarks of the Variation:—

"Not very variable, except that a recurrent form is of a deep rich red, or purplish red, with the same paucity of marking. The form appears to accompany the type, rarely in the Southern counties, rather more frequently in the Eastern, and of a peculiarly deep rich colour in the Breck-sand district; very much more commonly in the North, where indeed it becomes predominant. It is this variety which has been named *castanea*. It is connected with the type by intermediate gradations—pale drab at the base, toning gradually to purple red at the apex and hind margin; browner drab with the whole surface tinged with red; or grey-brown with a reddish tinge, most strongly expressed at the margins—a curious colour. A local tendency toward cream colouring is noticed in Salop. Specimens from Stornoway are very deep dark red."

He records examples "Of a most exquisite, smooth, creamy ochreous."

Another with "the R-wing purple-red and the left buff," from Perthshire.

Another from the New Forest, "Of a pale reddish-grey, with the subterminal line sharply edged inside with dark brown."

Another, a Scottish specimen, "Pale drab colour, but with the costa red, almost rosy, and a shade of the same over the costal region."

The Names and Forms to be considered are:—

castanea, Esper (1788), *Schm. Abbild.*, IV, 2 (1), 27, plt. 187 (1788?-96?).
f. *neglecta*, Hb. (1800), *Samml.*, 160.

ab. *laevis*, Hb. (1800), *Samml.*, 163 [Haw., *Lep. Brit.*, 207 (1809)].

f. *cerasina*, Frr. (1842), *Neu. Beitr.*, IV, 38, plt. 312.

cerasina, Gn. (1852), *Noct.*, V (1), 336-7.

ab. *pallida*, Tutt (1892), *Brit. Noct.*, 105.

ab. *xanthe*, Wdfd. (1901), *E.M.M.*, XXXVII, 116.

race *syriacae*, Strnd. (Hamp.) (1915), 1903, *Arch. Naturg.*, LXXXI, A, Heft. 11: *Lep. Phal.*, IV, 377.

ab. *subrubra*, Dhn. (1925), *Ent. Zt.*, XXXIX, 122.

ab. *glaucoptera*, Schultz (1930), *Int. Ent. Zt.*, XXIV, 169.

Tutt dealt with (1) *castanea*, the unicolorous red tint with white ends of nervures. (2) *neglecta*, Hb., the dull, dark grey. (3) *laevis*, Haw., the reddish grey form. (4) *cerasina*, Freyer, reddish grey = *laevis*, Haw. (5) *cerasina*, Gn., which is the typical form = *castanea*. (6) *pallida*, Tutt, pale whitish ochreous, stigmata outlined in red. •

ab. *xanthe*, Woodfd., *Ent. Mo. Mag.*, XXXVII, 116 (1901).

ORIG. DESCRIP.—“In this form the colour of the primaries, instead of the usual red (as in *N. castanea* type), or grey (as in var. *neglecta*, Hb.), is a rich yellow, approaching more closely to that of mustard than anything else I can think of, but also somewhat similar to that of the male *Euthemonia russula*. The colour is darker towards the base, paling off a little towards the hind and inner margins. The thorax is of a darker, almost orange yellow; and the cilia of the secondaries are paler, approaching a lemon colour. The reniform stigma has the inner portion dark grey, almost black and the margin is visible, though not very distinct. The orbicular is slightly paler than the ground colour.” Market Drayton, N. Staffordshire.

ab. *syriacae*, (Hamps.) Strand., *Arch. Naturg.*, LXXXI, abt. A, Heft. 11 (1915).

ORIG. DESCRIP.—Hamps., *Lep. Phal.*, IV, 377 (1903). “Hindwing white, the terminal area tinged with fuscous.” Syria.

race *subrubra*, Dnln., *Ent. Zt.*, XXXIX, 122 (1925).

ORIG. DESCRIP.—“There occur also, between these two forms, examples with strong reddish suffusion as in *neglecta* (but not only at the base), when in the Tyrol this subspecies appears pure grey with bluish tone. It cannot be put under *laevis* of Haw. (Hb.).”

ab. *glaucoptera*, Schultz, *Int. Ent. Zt.*, XXIV, 169 (1930).

ORIG. DESCRIP.—“Head, thorax, body, fore and hindwings white grey, lines and spots evenly emphasised, the lower portion of the reniform stigma darker.” Bred from larva among numerous others from Soltau, Germany.

Noctua, L. (1758) Ochs. & Treit. (1816-25) Godt. Bdv. H.-S. Gn. Smith. [*Agrotis*, Ochs. & Treit. (1816-25) Stdgr. Hamps. Splr. Cul.: *Graphiphora*, Ochs. & Treit. (1816-25) Godt. Steph. Wood. H.-S.: *Triphaena*, Hb. (1821) Meyr., 2: *Rhyacia*, Hb. (1822) Warr.-Stz.: Cort.-Drdt.] *baia*, Fb. (1787) = *baja*, Schiff. (1775).

Tutt did not give the original description of *baja*, but took that of Fab., *Mant.*, in 1787. Schiff. in the *Verz.*, 77 (1775), gave a very insufficient description of *baja*. It was one of those moths which “have a small longitudinal tuft on the thorax; on the forewings at the outer margin was a somewhat clear but a slightly more curved line than in the foregoing group [containing *Taeniocampa* species]; at the commencement of the outer margin are coalesced black spots; also in the discal area between the two transverse lines are grouped black markings.” No. 3 in this group is *N. baja*, attached to *Atropa belladonna* “with blackish spots on the outer margin.”

In the 1801 *Verz.* of Illiger & Hafeli, I, 238, we read that the first detailed description was made by Schrank in Fuessly's *Neu Magaz.*, II, 213, from the specimens in the Schiffermüllerian Collection.

Thus the name is *baja*, Schiff.

All the older authors spell it *baja* and not *baia* as Tutt, *Br. Noct.*, did, and they referred it to Schiff., *Verz.* Possibly South's List is the origin of the spelling *baia* in this country. It was *baja* in Stdgr., *Cat.*, IIed. (1871), from which South's List was an adaptation.

Tutt, *Brit. Noct.*, II, 105 (1892): Meyr., *Handb.*, 106 (1895): Barr., *Lep. Br. Is.*, IV, 85, plt. 147, 1 (1897): Stdgr., *Cat.*, IIIed., 138 (1901): Hamps., *Lep. Phal.*, IV, 403 (1903): Splr., *Schm. Eur.*, I, 148, plt. 32, 27 (1905): South, *M.B.I.*, I, 220, plt. 114, 7-8 (1907): Warr.-Stz., *Pal. Noct.*, III, 44, plt. 9k (1909): Culot, *N. et. G.*, I (1), 41, plt. 6, 13 (1910): Meyr., *Revis. Hand.*, 112 (1928): Corti-Drdt.-Stz., *Pal. Noct. Sup.*, III, 77 (1933).

Ernst & Engr., *Pap. d'Eur.*, VIII, 20, f. 540 (1792), give two figures: the colour is too brilliant and the markings in too strong contrast. They refer it to the *baja* of the *Verz.*, Schiff.

Esper, *Abbild.*, IV (2), 603, plt. 167, 6 (1786?), figures *baia* under the name *tricomma*. It is very poor: the lower wings are much too yellow.

Hb., *Saml. Noct.*, f. 119 (1800-3), has the band of the forewing too brightly red, especially at its margins.

Godt., *Hist. Nat.*, V, 203, plt. LXIII, 4 (1825), gives a good figure of *baja*, but with rather prominent dark red stigmata.

Ochs. & Treit., *Schmet. Eur.*, V (1), 215 (1825), says it is the *tricomma*, Esp. and refers it to the *baja*, Schiff.

Freyer, *Beitr.*, II, 89, plt. 74 (1829), gives a good figure. He complains that the fig. of Hb. is far too variegated and bright. He does not agree that *tricomma*, Esp. is this species as the larva of that was said to feed on *Atropa belladonna*, whereas his larva fed on various low plants.

Wood, *Ind. Ent.*, f. 163 (1836), gives a rather poor figure.

Humph. & West., *Brit. Moths*, I, 130, plt. XXV, 8 (1842-3), has an impossible figure.

H.-S., *Bearb.*, II, 360 (1846), remarks on the colour of Hb., fig. 119, as "too bright and glaring."

Gn., *Noct.*, remarks that the ♀ fig. of *festiva* in Engram. is *baja*.

Meyr., *Hand.*, Ied. and IIed. (1895 and 1928), placed *baja* in *Triphaena*.

Dyar, *List N. Am. Lep.*, 134 (1903) accepts *smithii*, Snell. as the specific name of the *baia*-like insect of Canada and the Northern States, and makes no reference to the previous history of the species. This Warr.-Seitz ignores.

Splr., *Schm. Eur.*, I, 148, plt. 32, 27 (1905), gives a good figure of the Continental red-brown form. He calls it *baia*, and also the ab. *baiula* is with i and not j.

Hamp., *Lep. Phal.*, IV, 406 (1903), reports this species from Vancouver, Canada, U.S.A., Northern States, New York, as well as Japan and Siberia. No doubt this was based on the opinion of Smith, *The Genus Agrotis*, 1890, who strongly suspects that the American and

European are one and the same species from all the evidence then available to him. He refers to the definite statement of Speyer, *Stett. e. Zt.* (1875), as to their identity. Tutt does not refer to this.

Hamp., *l.c.*, includes *smithii*, Snell. as a form of *baja*, but Dyar in his *List N. Amer. Lep.*, 134 (1903), treats *smithii* as a good species of the genus *Noctua*, L. Of which Snellen in his description in *Tijd. f. Ent.*, XXXIX, 157 (1896) after detailed examinations says: "I hold the latter (the Amer. form) to be a very different sort; I name it *smithii*."

Warr.-Stz., *Pal. Noct.*, III, 44, plt. 9k, treat *tricomma* and *smithii* as synonyms of *baja*. The typical form and ab. *bajula* are figured, both good; *punctata* is included. The reference to Tutt's aberrations *purpurea*, *grisea* and *coerulescens* are only colour variations.

South, *M.B.I.*, I, 220, plt. 114, 7-8, ♂ and ♀. These two figures are rather too pale for average British specimens.

Culot, *Noct. et G.*, I (1), 41, plt. 6, fig. 13 (1910), gives an excellent figure of the typical form.

Draudt-Seitz, *American Noct.*, VII, 51 (1924), writes: "*A(grotis) baja*, F. (= *smithii*, Snell.). This species being otherwise Palaearctic (Vol. III, 44) occurs in Canada, U.S., as far as N. York in a hardly different form."

Barrett describes the Variation as follows:—

"Variation very slight, except the general range of ground colour, from reddish-brown to purple-brown, or even purplish drab; but occasional specimens are very pale in colour, or have pale transverse lines; in other instances the usually obscure markings are more distinct."

He reports a specimen "in which the sub-apical black triangle is broken up into three black wedges, from which the wing is crossed by a row of black dots."

Another "very dark red-brown with pale transverse lines," from Scotland.

The Names and Forms to be considered are:—

baja, Schiff. (1775), *Verz.*, 77.

tricomma, Esp. (1787), *Schm. Abbild.*, IV (2), 603, plt. 167.

baia, Fb. (1787), *Mant.*, II, 175.

ssp. *bajula*, Stdgr. (1881), *Stett. e. Zt.*, XLII, 411.

ab. *punctata*, Auriv. (1888), *Nord. Fjar.*, 115 [J. Mev., *Ent. Tijd.*, 71 (1884)].

ab. *purpurea*, Tutt (1892), *Brit. Noct.*, II, 105.

ab. *grisea*, Tutt (1892), *l.c.*

ab. *caerulescens*, Tutt (1892), *l.c.*

ssp. *smithii*, Snell. (1896), *Tijd.*, XXXIX, 157.

ab. *immaculata*, Hoffm. (1910), *Ent. Zts.*, XXIII, 223.

ab. *nisseni*, Roths. (1912), *Nov. Zool.*, XIX, 125.

f. *cinigera*, Filipj (1927), *Ann. Mus. Zool.*, U.R.S.S., XXVIII, 237.

Tutt dealt with (1) *baia*, Fb., the red form; (2) *tricomma*, Esp., the typical form also; (3) *purpurea* with a plum-coloured tint; (4) *grisea*, a pale greyish fuscous form; (5) *caerulescens*, with basal and costal areas with slaty tinge; (6) *bajula*, Stdgr., in the Appendix to Vol. IV, *Brit. Noct.*

ssp. bajula, Stdgr., *Stett. e. Zeit.*, XLII, 411 (1881).

ORIG. DESCRIP.—“A Noctuid (almost all ♀s) sent in great numbers from Lepsa (Central Asia), which were probably taken in the autumn at light, gives a tolerably variant impression of *baia*, to which I therefore apply the varietal name *bajula*. *A. bajula* is on the average smaller (appearing also narrower winged) especially paler (lighter) than *baia*. The freshest, cleanest examples have the forewings a pale grey brown and the hindwings dull black grey. The black spots on the outer margin so strongly emphasised in *baia*, are almost wholly absent before the apex, only very seldom are they present almost equally strong. The underside of the wings, thorax and especially also the abdomen are not so apparently suffused red brown, but pale grey-yellow. The antennae of the ♂ and other characters are all quite the same or similar.” Tutt says in the Appendix to Vol. IV, *Brit. Noct.*, p. 117, that this form runs *grisea* very close but “always have the small apical costal streak well developed.”

Hamps., *Cat. Lep. Ph.*, IV, 404 (1903), says “Ground colour darker brown, much more suffused with grey.”

ab. punctata, (J. Mev.) Auriv., *Nord. Fjar.*, 115 (1888).

ORIG. DESCRIP.—“Transverse lines along their length with black dot-like spots on inside.” Funnen, Scandinavia.

ab. immaculata, Hoffm., *Ent. Zt.*, XXIII, 223 (1910).

ORIG. DESCRIP.—“A freshly emerged ♀ of the red form *purpurea*, Tutt, in which the black wedge-shaped spot in the apex of the forewing is quite wanting; also the rest of the marking is obsolescent.” Krieglach.

Hamps., *Cat. Lep. Ph.*, IV, 404 (1903), says “Forewings with series of black points on the lines.”

ab. nisseni, Roths., *Nov. Zool.*, XIX, 125 (1912).

ORIG. DESCRIP.—“♀. Palpi black-brown; head, antennae, and thorax pale wood-brown; abdomen pale yellowish wood-brown. Forewing wood-brown, somewhat clouded with rufous in median area; a sooty sub-basal, transverse, hair-like, convex line, a black spot beyond it, and two antemedian transverse, sooty, irregular hair-lines, the two stigmata large and somewhat faint, appearing only in outline; two postmedian, transverse, sooty hair-lines, the outer composed of dots; between the latter and the margin a transverse line of black coalescent spots. Hindwing brownish grey, fringe rosy brown. Length of forewing, 24mm.” Hab., Ain Draham, Tunisia (V. Faroult). 1 ♀.

ab. cinigera, Filip. (Alph. in lit.), *Ann. Mus. Zool. U.R.S.S.*, XXVIII, 237 (1927).

ORIG. DESCRIP.—“One ♂ from Sidemi (Jankovskij). Is distinguished from the typical form in colour, which is bluish-grey, not brownish. But the size, the marking, as well as the genitalia of the ♂ (according to the examination of Herr J. Kozancikov) agree with those of *baja*. I am not an advocate of racial determination from wholly insufficient material, but in this case I make an exception, since the Sidemi form was well-known to Alpheraky; I was never able to find the description, but I am aware that the name has got into the literature, so I must de-

cide to fix it. The form does not agree with the *coerulescens*, Tutt; this latter, which I do not know in nature, according to the description, has a bluish colour on the costal and basal part, while the specimens lying before me are wholly uniformly bluish-grey in colour. The species flies in Central Siberia in both forms at the same time, further west the form *cinigera* is completely unknown."

Corti-Drdt.-Stz., *Pal. Noct. Supp.*, III, 77 (1933), wrote of it, "The entire wing is coloured a bluish-grey in contrast to *coerulescens*, Tutt, in which only the costa and basal area are thus coloured:" plt. 11h, *cinigera*, E. Siberia, Minussinsk.

Noctua, L. (Ochs. & Treit., 1816-25). Many authors, Dup. H.-S. Barr. Sth. [*Agrotis*, Ochs. & Treit. (1816-25) Stdgr. Splr. Culot: *Graphiphora*, Ochs. & Tr. (1816-25) H.-S.: *Triphaena*, Ochs. & Tr. (1816-25) Meyr.: *Mythimna*, Ochs. & Tr. (1816-25) Hamp.: *Orthosia*, Ochs. & Tr. (1816-25) Gn.: *Cerastis*, Ochs. & Tr. (1816-25) Warr.-Stz. Corti-Drdt.-Stz.: *Rhyacia*, Hb. (1822) Corti-Drdt.-Stz.] *sobrina*, Gn. (1841-52).

Tutt (and others) put Gn. as the author of the name *sobrina* (1852). Gn., *Hist. Nat. Noct.*, V, 335, gave "Bdv. in litt." *Ind. Method.*, which was only a list. Stdgr. gives Gn., *Ann. Soc. ent. Fr.*, p. 239 (1841) *Essai Noct.* Dup. described and figured two insects under this name in 1842. Frr. figured two forms of it in 1845. H.-S. described and figured it in 1846. Gn., in 1852, only described the larva, but incidentally referred to the colour of the typical forms. In spite of the absence of descriptive detail the name *sobrina* has been accepted, with the author Gn.

Tutt, *Brit. Noct.*, II, 106 (1892): Barr., *Lep. Br. I.*, IV, 80, plt. 144, 2 (1897): Stdgr., *Cat.*, IIIed., 136 (1901): Hamps., *Lep. Phal.*, IV, 607 (1903): Splr., *Schm. Eur.*, I, 144, plt. 32, 11 (1903): South, *M. Br. I.*, I, 227, plt. 114, 6 (1907): Warr.-Stz., *Pal. Noct.*, III, 61, plt. 14c (1909): Culot, *N. et G.*, I (1), 34, plt. 5, 1-3 (1910): Corti-Drdt.-Stz., *Pal. Noct. Supp.*, II, 85 (1933).

Dup., *Hist. Nat. Supp.*, IV, 224, plt. LXIX. 5 (1842), gives two quite erroneous figures, and neither agrees with its description.

Freyer, *Neu. Beitr.*, V, 102, plt. 441, 3 (1845), described and figured under the name *mista*, a moth, which Stdgr. has identified as a form of *sobrina*, *Cat.*, IIIed., 136 (1901). It was identified by Weissenborn, who sent it to Freyer as *sobrina* and Gruner agreed with this. But Freyer himself compared it with the fig. 509 in Hübner and determined it as *mista*, Hb. He says that Boisduval considered *mista*, Hb., as an ab. of *rubricosa* in error (see *Ind. Meth.*, 1138, 1840). Freyer, *l.c.*, 122, plt. 455, 4 (1845), described and figured under the name *lapponi(c)a*, another insect which resembled *mista* and *baja*. This Stdgr. also identifies as a form of *sobrina*. These two figs. of Freyer are much alike, the former is only much darker than the latter.

H.-S., *Bearb.*, II, 360, figs. 127-9 (1846), gives good figs. of two forms, one with much darker ground than the other. He refers to *gruneri*, Tr., in *litt.* and gives a good comparative description.

Gn., *Noct.*, V, 335-6, places the form *gruneri*, Dup., from the Pyrenees, to this species. Larger and the reddish being changed to ashy white slightly rose. Hindwings pale. Thorax as forewings. Form A.

Stdgr., *Cat.*, 136 (1901), puts *mista*, Freyer, 441-3, to *sobrina* and *lapponi(c)a*, Freyer, 455, to ab. *gruneri*, Gn. (al. ant. fere tot. griseo-inspersis.).

Splr., *Schm. Eur.*, I, 144, plt. XXXII, 11 (1908), gives a good figure of the grey purple-red form.

South, *M.B.I.*, I, 227, plt. 114, 6 (1907). gives a fair figure of this grey suffused purple-brown species.

Warr.-Seitz, *Pal. Noct.*, III, 64, uses the genus *Cerastis*, Ochs. & Tr., and places *mista*, Frr. and *lapponica*, Frr. as synonyms, and only recognises *gruneri*, Gn., as a form which = *suffusa*, Tutt.

Culot, *N. et G.*, I (1), 34, plt. V, 1-3 (1910), gives three good figures, ♂ and ♀ and f. *gruneri* strongly powdered with grey.

Corti-Drdt-Seitz, *Pal. Noct. Supp.*, III, 88 (1933), place *sobrina*, Bdv., in the genus *Cerastis*, Freyer. But they remark that it should probably be placed in the genus *Lycophotia*, Hb. They suggest that "perhaps this *confina*, Kozh. form from Minussinsk is a separate species." Differs in having the markings very finely emphasised in black, whereas in the name form the markings are indistinct.

Barrett, *l.c.*, plt. 144, fig. 2, has the subterminal line on the left forewing much too emphasised to be called "a faintly yellow cloud;" that on the right side is more correctly expressed. The general brown coloration is not a correct colour.

Barrett remarks on the Variation that it is "Extremely constant in colour and (absence of) markings."

The Names and Forms to be considered are:—

sobrina, Gn. Bdv. (1852-1841), *Hist. Nat.*, V, 335. *Ann. Soc. ent. Fr.*, 239.

f. *mista*, Frr. (1845), *Neu. Beitr.*, V, 102, plt. 441.

f. *lapponi(c)a*, Frr. (1845), *l.c.*, V, 122, plt. 455.

f. *suffusa*, Tutt (1892), *Br. Noct.*, II, 106.

f. *gruneri*, Gn. (1852), *Hist. Noct.*, V, 335.

ab. *confina*, Kozh. (1925), *Jahrb. Martjan. Minus. Mus.*, III (1), 75.

ab. **intensa**, n. ab.

Tutt dealt with (1) *sobrina*, Gn., dull reddish grey with indistinct margins (Rannoch). (2) *mista*, Freyer, more rosy red on the outer margin and centre, basal half whitish scales and along veins (Perth). (3) *gruneri*, Gn., reddish colour replaced by ashy white slightly rosy, hindwings paler. (4) *suffusa*, Tutt, dullest and least strongly marked, dull dark grey.

f. *lapponica*, Frr., *Neu. Beitr.*, V, 122 (1845) [*lapponia* in the text, *lapponica* on the plate].

FIG.—*l.c.*, 455. (Tutt says he considers this to be *castanea*.)

ORIG. DESCRIP.—"Has a similarity to *mista* and *baja*, but differs somewhat in shape. The forewings are brown-grey up to 2/3 from the base and overspread with an ashy suffusion. The marking is scarcely visible. The dark stigmata are almost gone and only traced by slight remnants. The bands are the same, of which that before the orbicular

and the next beyond the reniform go across the wings to the margins bowed towards the outer part of the wing. Between this second band and the fringes, which are coloured like the forewing, a second paler thinned out band exists. On the veins between these two lie a row of dark dots." The description and the figure do not agree. The markings, especially the transverse lines (bands), are much too emphasised instead of being practically obsolescent.

ab. *confina*, Kozh., *Jahrb. Martjan. Minus. Mus.*, III (1), 75, (1925).

DESCRIP.—Teste Drdt.-Stz., "differs from typical *sobrina* by having the transverse lines and stigmata finely and very distinctly indicated by black lines; these lines are usually indistinct." Minussinsk, *l.c.*, 85 (1933).

ab. *intensa*, n. ab.

ORIG. DESCRIP.—"An example from Aberdeenshire in the Burrows collection is without any grey suffusion and of an intensely dark brown with a slight red tinge. The colour so deep that it is only with difficulty even with a lens that any markings can be traced at all. In fact without a lens one would say a rough surfaced colour. The hindwings also partake in the dark coloration, being more smoky than any other example I have. Others from the same locality tend to approach this darkening."

Noctua, L. (Ochs. & Tr.) (1816-25) Gn. Barr. Sth.: [*Agrotis*, Ochs. & Tr. (1816-25) Stdgr. Hamp. Splr. Culot: *Graphiphora*, Ochs. & Tr. (1816-25) Meyr.: *Orthosia*, Ochs. & Tr. (1816-25): *Caradrina*, Ochs. & Tr. (1816-25) Steph. Freyer: *Eugrapha*, Hb. (1821): *Rhyacia*, Hb. (1822) Warr.-Stz.] *glareosa*, Esp.

Tutt, *Brit. Noct.*, II, 108 (1892) Append., IV, 118: Barr., *Lep. Br. I.*, IV, 32, plt. 141 (1897): Stdgr., *Cat.*, IIIed., 141 (1901): Hamp., *Lep. Phal.*, IV, 375 (1903): Splr., *Schm. Eur.*, I, 151, plt. 33, 15 (1905): South, *M.B.I.*, I, 218, plt. 110, 4 (1907): Warr.-Seitz, *Pal. Noct.*, III, 39, plt. 8f (1909): Culot, *N. et G.*, I (1), 50, plt. 8, 2 (1910).

Ernst & Engr., *Pap. d'Eur.*, give 3 very good figures of this species, VI, fig. 416 (1788).

Esper, *Abbild.*, IV (2), 387, plt. 128, 3 (1789), gives a figure of *glareosa*, with only the basal half of the forewing being of the typical light dove grey colour.

Hb., *Samml. Noct.*, f. 642 (1818-22), gave an excellent figure of the *hebraica* form. In the *Verz.*, 124 (1821), classified under the genus *Eugrapha*. In the former he wrote *hebraeica*, but in the *Verz.* he wrote *hebraica*. Warr.-Stz. adopted the first spelling.

Steph., *Ill.*, II, 159, plt. 21, 1 (1829), describes and figures (very poorly) *glareosa*. (Curtis notes that it is *hebraica*.) The figure is very poor and of a greenish yellow shade. Probably the plate has deteriorated in my copy.

Treit, *Schm. Eur.*, X (2), 79 (1835), suggests that *hebraica*, Hb., having been bred in number by Herr Hess in September, may be a second generation of *glareosa*.

Dup., *Hist. Nat.*, VI, 80, plt. LXXVII, 6 (1826), gave a rather dark dove coloured *glareosa* under the name *i-geminum*. Dup., *l.c.*, p. 75, plt. LXXVII, 3-4, gave two figures named *i-intactum* (of *hebraica*, Hb.) with the synonym *glareosa*, Esp. & Tr. But these are not *glareosa* as we know it, but probably *margaritacea*.

Freyer, *Neu. Beitr.*, III, 15, fig. 201 (1839), gave two other very good figures under the name *hebraica*, in the genus *Caradrina*. In *l.c.*, II, 146, fig. 185 (1836), he gave two figures under the name *glareosa*, and refers the first to the *i-intactum*, Hb., and the second to *kadenii*. (See fig. 186.) On comparing the two figs., 185 (2) and 186, one sees the absolute differences on both upper and undersides, and that the two figures of plt. 146 are *margaritacea*, Brk. (which Treit. called *glareosa*) (*I-intactum*, Dup.?)

H.-S., *Bearb.*, II, 199 (1846), says the figs. 642-3 Hb. *hebraica* are very good ♂ and good ♀. His figure III is of a dark rosy form given him by Keferstein, and he notes that Treit's *glareosa* is the *margaritacea*, Bork.

Gn., *Noct.*, V, 324 (1852), points out that this species was mixed by early authors with *margaritacea*, Bork., and that Duponchel had definitely separated it. He refers to the rosy tinted form as var. A.

Millière, *Icon.*, I, 234, plt. 26, 4-8 (1861) like most continental authors has an excellent figure of a dark form.

Weir, *Ent.*, XVII, 2 (1884) describes and figures a specimen in which "The ground colour of the upper wings, instead of the usual grey, is of a rich dark brown" (plt. I, fig. 1) and are lighter brown on the marginal area which runs inward to a dirty grey disc and base. Similar forms from the same place, Unst, Shetlands, were subsequently named *edda* by Stdgr., *Iris*, IV, 266 (1891). Weir does not name it.

In the *Young Naturalist*, V, 121 (1888), J. E. Robson describes a form of *glareosa* in the Gregson collection under the name *hebraicaoides*, which has a "dark cold brown colour, making the costal spots appear less distinctly defined, and the margins of the stigmata more so."

Barrett gives 3 figures on plt. 141. Fig. (1) a pale lilac-grey with the markings black, some of the submarginal area being dark brown grey without the lilac. (1a) Is a form of light brown ground colour somewhat darker on the outer and costal area. (1b) A blackish Shetland form.

Stdgr., *Cat.*, 141 (1901), places *hebraica*, Hb. and *I-geminum*, Dup. as *glareosa*, Esp., and Weir's Shetland *glareosa* as the *edda*, Stdgr., *Iris*, IV, 266 (1891).

The *edda*, Stdgr., is from Shetland as is the *suffusa*, Tutt. From the descriptions they would appear to be two forms with only a slight difference. The former is described as "dark brown black" (by Spuler as "rauch braun"), the latter as "rich dark brown; melanic." Possibly the "dark fuscous" of Meyrick covers both forms.

Spuler, *Schm. Eur.*, I, 151, plt. 33, 18 (1905), has a somewhat dark typical figure.

South, *M.B.I.*, I, 218, plt. 110, 4, gives a good figure of a dark slaty grey.

Warr.-Seitz, *Pal. Noct.*, III, plt. 8f. (1909), gives a figure dark grey on both wings and certainly not typical and far from "pearly" grey as in the text, p. 39. They treat as synonyms *decempunctata*, Vill., *heb-*

raeica, Hb. and *I-geminum*, Dup. The *suffusa*, Tutt, is put as a synonym of *edda*, Stdgr.

Culot, *N. et G.*, pl. VIII, fig. 2 (1909), has an excellent figure of a typical specimen.

Corti-Drdt.-Stz., *Pal. Noct. Supp.*, III, 63, correct the main volume in that in the *limbata*, Gouin. form the ground is bluish-grey not bluish-green.

Barrett reports on the Variation:—

“ Usually very constant in colour and markings, but subject to local or climatal variations in colour. Specimens from Ireland and the West of England are frequently tinged with a bright rosy pink beyond and below the two stigmata and especially so toward the costal margin before the apex. In Scotland the tendency is toward a deeper darker slate-grey, occasionally intensified to grey-black. This last form has been found in Perthshire, but is comparatively common in the Shetland Isles, where the species is more plentiful than in the South, and it is stated that the blackest specimens are found in those portions of the islands in which the rocks and soil are blackish, while in districts close at hand, in which the rock is of a paler colour, ordinary grey examples are found. The blacker Shetland specimens are sometimes wholly of the slate-black colour, but often have the two stigmata and the transverse lines outlined, faintly or distinctly, with whitish or yellowish, while the usual black spots are somewhat inconspicuous, or else that between the stigmata is sharply and intensely black. In these dark forms the hindwings are tinged with smoky grey, darker along the hind margin and at the apex. Intermediate specimens occur in all shades of slate grey; the pink clouding seems to be here unknown. Along with these variations in colour, alterations in shape occur, some individuals having their forewings conspicuously narrow. In Morayshire this peculiar form of the forewings is found associated with a clear pale grey colouring.” He reports a specimen with “ the forewings of a rich chocolate brown, the pale markings becoming very distinct; it also has dark hindwings.”

Others “ having the usual black spot which precedes the orbicular stigma produced into a sharp horizontal wedge, the point of which is towards the base of the wings.”

The names and forms to be considered are:—

- glareosa*, Esp. (1788), *Schn. Abbild.*, IV, 387, pl. 128, 3.
- decempunctata*, de Vill. (1789), *Linn. Sys. N.*, II, 273, pl. VI, 17.
- hebra(e)ica*, Hb. (1818-22), *Samml. Noct.*, 642.
- I-geminum*, Dup. (1826), *Hist. Nat.*, VI, 80, pl. 77, 6.
- hebraicoides*, Greg. (1888), *Young Nat.*, 121.
- edda*, Stdgr. (1891), *Iris*, IV, 266.
- rosea*, Tutt (1892), *Brit. Noct.*, 108.
- suffusa*, Tutt (1892), *l.c.*
- limbata*, Gouin (1900), *Actes Soc. Linn. Bordeaux*, pl. IV, 5.

Tutt dealt with (1) *glareosa*, Esp., pale violet grey or pale whitish grey; (2) form *rosea*, Tutt, lilac grey tinted with rose; (3) *I-geminum*, Dup., base grey, outer half rosy; (4) f. *suffusa*, Tutt, rich dark brown, brownish black; (5) in Appendix, vol. IV, p. 118, f. *hebraicoides*, Greg.,

dark cold brown ground colour; (6) f. *hebraica*, Hb., darker grey between the two outer transverse lines.

decempunctata, de Vill., *Linn. Entom.*, II, 273 (1789).

FIG.—plt. VI, f. 17 (plt. V in error).

ORIG. DESCRIPT.—“Clarescente griseis, punctis nigris decem.”

“Magna inter medias. Superiores alae griseae, fusco mixtae, ad basin fere 2 punctis nigris, tribus aliis inferius: alis clausis, haec decem puncta figuram trapezinam efficiunt, cajus latus superius rectum, inferius curvum. Alae inferiores infra albidae.”

This is a description of the typical form shown on the plate.

f. *edda*, Stdgr., *Iris*, IV, 266 (1891).

FIG.—*Ent.*, XVII, 2 (1884).

ORIG. DESCRIPT.—“This extremely striking form is from the Shetland Isles. The forewings are dark brown black with white transverse lines and slightly developed stigmata margined on the inner side with deep velvety black. The hindwings are, instead of white-grey, grey-black. This form is referred to shortly in the *Entomologist* (1884), 2, and there is a pretty good figure, only the hindwings are lighter than in the specimens before me.” Weir did not name the form he figured.

ab. *limbata*, Gouin, *Actes Soc. Linn. Bordeaux* (1900).

FIG.—*l.c.*, plt. IV, 5.

ORIG. DESCRIPT.—“Has the forewings with a wide black margin,” teste Gelin and Lucas, 1912.

Noctua, L. (1758), Ochs. & Treit (1816-25), Dup., Freyer, Gn., Newm., South, Barr. [*Agrotis*, Ochs. & Tr. (1816-25), Stdgr., Meyr., Splr., Hamp., Culot: *Rhyacia*, Hb. (1822), Warr.-Stz.: *Graphiphora*, Ochs. & Tr. (1816-25), Steph., Wood, Meyr.] *depuncta*, L. (1761).

Tutt, *Brit. Noct.*, II, 109 (1892): Barr., *Lep. Br. Is.*, IV, 41, plt. 142 (1897): Stdgr., *Cat.*, IIIed., 141 (1901): Hamp., *Cat. Lep. Phal.*, IV, 402 (1903): Splr., *Schm. Eur.*, I, 131, plt. 33 (1905): South, *M.B.I.*, I, 220, plt. 110, 5 (1907): Warr.-Stz., *Pal. Noct.*, III, 44, plt. 9i (1909): Culot, *N. et G.*, I (1), 49, plt. 8, 1 (1910).

Esp., *Abbild.*, IV (2), 683, plt. 117 (1789), unrecognisable as *depuncta*.

Bork., *Naturg.* (1792), IV, 528, describes an example sent him by Scriba, more fully than Linn. Treit, *Schm.*, V (1), 230, says that Bork. probably had a variety of *litura* before him in place of *depuncta*. But the words “hoary ashy-grey” suit *depuncta* rather than *litura*.

Hübner gives two figures of this species under the name *mendosa*. Fig. 120, *Samml.* (1800-3), is a reddish tinged form, which does not seem to be known now. Tutt had never seen it. Fig. 502, *l.c.* (1808-18), is a good one of our north British deep brownish ochreous form. Tutt says this is our usual form.

Godt., *Hist. Nat.*, V, 191, plt. 62, 3-4 (1824), gives two figures, 3 is too dark and 4 is too yellow with too dark hindwings. These are not at all good.

Steph., *Ill.*, II, 133 (1829), included *depuncta* on the authority of Haw., although he never saw a specimen and Haw. did not include it in his *Lep. Brit.*

Freyer, *Neu. Beitr.* (1836), II, plt. 166, gives a poor figure. The ground colour is brown grey and the veins very white, as also is the surround of the stigmata. The markings are too definite.

H.-S., *Bearb.*, II, 357 (1849), remarks on Hübner's figures: *mendosa* "120 better than 502 in outline, but the forewing is somewhat too pointed, colour quite incorrect. 502 form quite incorrect, margin of forewing much too oblique, colour too yellow, hindwing too grey." On Esper's fig., plt. 177, 3, he says "of no use."

Newman, *Brit. M.*, p. 344 (1868), gives a good bl. and w. figure.

Meyr., *Hand.* 104 (1896), genus *Agrotis*, *Revis. Hand.*, 109 (1928), genus *Graphiphora*.

South, *M. B. Is.*, I, plt. 110, f. 5, (1907), is a good figure.

Barrett, *l.c.*, plt. 142, give a good figure of the species, and another in which the usual black blotch between the stigmata is brown nearly of the ground colour, a darker submarginal band and the marginal band on hindwing wider and darker as well as the disc of the wing. The ground colour is hardly the specific tint.

Brown, *Dobr. Eur. Noct.*, 56 (1905), *pontica*, Asia Minor, darkest example in the collection.

Splr., *Schm. Eur.*, I, 151, plt. 33 (1905), gives a very good figure.

Warr.-Seitz, *Noct.*, III, 44 (1909), places *depuncta* in *Rhyacia* next to *ditrapezium* and *triangulum*, and treats the *mendosa*, Hb. as a type synonym. On plt. 9i is a good figure, perhaps too hard a brown.

Culot, *N. et. G.*, I (1), 49, plt. 7, 1 (1910), gives a very good figure of a somewhat dark form.

Of the variation Barrett says:—

"Usually but slightly variable in the tone of colour of the forewings and in the black or brown colour of the outer spots. Occasional specimens, however, are handsomer from the increased richness in the tone of reddish-brown and greater size of the markings."

Barrett records Scotch examples as "very remarkable for black clouding in the basal half of the forewings," and of N. Wales specimens "of a greyer tone of brown colour," and of another "of a smooth grey-brown with hardly a trace of markings."

The names and forms to be considered are:—

depuncta, L., *Fn. Suic.*, 321 (1761).

r. *mendosa*, Hb., *Samml. Noct.*, 120 (1800-3), 502 (1808-18).

ab. *consenescens*, Stdgr., *Iris*, IV, 266, plt. VI (1891).

ab. *pontica*, Stdgr., *l.c.*, 267.

ab. *maddisoni*, Newm., *Proc. S. Lond. Ent. S.*, 93 (1923).

r. *meridionalis*, Dnh., *Ent. Zeits.*, XXXIX, 128 (1925).

ab. *obscura*, Clayhills, *Not. Ent.*, VI, 83 (1927).

ab. *arenoflavida*, Schaw., *Int. Ent. Zeit.*, XXVIII, 425 (1934).

Tutt was most indefinite in dealing with the typical form, (1) which Linn. described as "cinereae seu subgrisescentes" = slaty-grey. The Scandinavian examples in the Doubleday Collection were larger and in addition were tinged with a very faint reddish. (2) Forres specimens

are more ochreous slaty-grey, and very like the fig. 502, Hb., var. *mendosa*, to which they may be referred.

ab. pontica, Stdgr., *Iris*, IV, 266 (1891).

ORIG. DESCRIP.—“ The forewings are reddish brown, more or less violet-grey suffused. The two black spots standing one over the other at the base are almost always run together as a transverse line; the central suffusion is as good as wholly wanting, allowing the transverse line, especially on the outside, to stand out much sharper. The hindwings of this var. *pontica* are, instead of being dark brown-grey blackish, wholly light dusky grey-white somewhat darkened on the outer portion.” Amurland and Turkestan.

ab. consenescens, Stdgr., *Iris*, IV, 267 (1891).

ORIG. DESCRIP.—“ As *ab. consenescens* I name a constant aberration obtained in considerable number among the var. *pontica*, of which the forewings are wholly light grey, somewhat as in *glareosa*, Esp. No transition to var. *pontica* has been found and I at first considered this *ab. consenescens* as a species differing from it. But the markings agree perfectly, only that on the light-grey forewing the dark markings stand out more prominently. The hind wings of the *ab. consenescens* are just as light as those of the var. *pontica*.

f. meridionalis, Danh., *Ent. Zeit.*, XXXIX, 128 (1925).

ORIG. DESCRIP.—“ Characterised by a deeper grey-red general tinge. Also usually more robust, becomes more varied, especially the basal area, frequently a pale-grey-blue powdering, whereby the discal area especially becomes appreciably darker. The dark marking element mostly strong and copious.” Terlan, Klausen, Tiers, Sigmundskron. The southern form.

ab. maddisoni (*Proc. S. Lond. Ent. S.*, 1923, p. 93).

?ORIG. DESCRIP.—“ A heavily marked specimen ” (“ with much dark brown on it.”

Dr Cockayne has kindly furnished the following description of this form:—“ Base, median area and stigmata thickly peppered with blackish brown scales; usual markings accentuated; marginal area lightly peppered with blackish scales; nervures blackened; oblique line of black hairs through tegulae.” Forres.

This was exhibited at the meeting of the Society on 22nd February 1923 by L. W. Newman. I cannot trace the author or the description.

ab. obscura, Clayhills, *Not. Ent.*, VII, 83 (1927).

FIG.—*l.c.*, p. 84.

ORIG. DESCRIP.—“ The ground colour of the discal area is as dark as the deep black spots on the proximal transverse lines of a typical specimen. The basal area is somewhat paler as also is the marginal area, where the black veins are emphasised. The transverse lines are double and pale grey-brown. The margins of the stigmata are of the same colour but the waved line is somewhat darker. The hindwings are dark brown-grey. The underside of all the wings is decidedly darker than in the typical form.” Island of Runsa near Abo, Finland.

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